CHEMICAL MARKETS

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Time to Fight Back

EVERY indication points—at the time of this writing—to the transfer of industrial alcohol control to the Department of Justice. For legitimate producers and consumers this proposal means a joint control that savors very unpleasantly of that double jeopardy of person and property against which our common law is supposed to protect us all.

QUITE obviously such a violation of basic rights is as nothing to the Prohibitionists who sanctimoniously justify any means to accomplish their end. From this high and holy position they accuse any opposition, any defense of the rights they outrage, of alliance with the illegal and demoralizing traffic in bootleg liquors. From this unfavorable and untrue position the legitimate maker and user of industrial alcohol fight for their rights at a tremendous disadvantage. Driven into a corner however they may at last be goaded into striking back manfully. From among all those companies whose hands are clean in all this dirty business will not some executive with the courage of his convictions and those qualities of leadership which would rally the solvents and chemical interests for the coming battle, stand forth?

THE manufacture and sale of denatured alcohol is not a privilege to be granted: it is a right, a right guaranteed by the Volstead Law itself, a right that no failure to prevent illegal diversion can annul. Nobody denies that such diversion exists. It is however, but a drop in the buckets of bootleg liquor all but openly sold everywhere. Even if it were the chief source, the blame lies in the failure to control permits to buy, a failure due in part to carelessness but chiefly to graft. Precious little industrial alcohol leaves legitimate hands unless withdrawn on permit, and when so withdrawn the responsibility is squarely upon the prohibition enforcement officers. No one knows better than they the trouble and expense to which the alcohol industry has gone in order to co-operate with them.

AND in return the industry has been bullied, and bound in red tape, and dishonestly maligned. It is high time this stopped, or the threat of the fanatics to "regulate industrial alcohol out of existence" will be made good. Protest and petition are of no avail. Demand for fair treatment, based on known facts, would find many supporters in Washington and throughout the country.

"SEE

American FIRST"

THE amount of Alcohol employed in your plant processes may be relatively small, yet the influence upon quality of production is decidedly large. This essential quality may be secured by specifying "American" Alcohol.

This premier Alcohol owes its excellence to high standards of manufacture in the large "American" producing plants . . . and to an exclusive process of distillation originated in our laboratories.

In these competitive times, every safeguard must be provided for your product. So, when Alcohol is needed, "See American First".

This is number 14 of a series depicting historical periods in the development of America

"Remember the Maine" was the battle cry of the Spanish-American War of 1898. The dispute over Cuba had reached the acute stage; the spark that precipitated armed conflict was supplied by the blowing up of the U. S. battle ship in Havana harbor. When the smoke of war had cleared the United States flag waved over the Phillipines, Cuba and Porto Rico.

Solvents and Plasticizers manufactured by the
KESSLER CHEMICAL CORPORATION
a subsidiary of
AMERICAN COMMERCIAL ALCOHOL CORPORATION
Ethyl Acetate
Butyl Acetate, Nor. and Sec.
Amyl Acetate
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Amyl Propionate
Butyl Butyrate
Ethyl Lactate
Butyl Alcohol, Sec.
Amyl Alcohol
Refined Fusel Oil
Butyl Stearate
Dimethyl Phthalate
Diethyl Phthalate
Diamyl Phthalate
Dibutyl Phthalate
Dibutyl Tartrate
Triacetine
Special Solvents and Plasticizers
Warehouse stocks carried at all principal consuming points

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COMMERCIAL ALCOHOL CORPORATION

420 Lexington Avenue, New York, N. Y.

Plants:

Pekin, Ill. Gretna, La. Philadelphia, Pa. Sausalito, Cal.

Packaged Chemicals

Imagine, if you can, John Boyer, or Irving Taylor, or J. G. Davidson in the plush and purple office of a department store buyer selling chemicals to a young lady with a Vassar background. How would Joseph Turner or John Chew negotiate a contract for Woolworth's requirements ? Listen, in fancy, to the Solvay Sextette or the Dow Little Devils over WOOF every Thursday at nine. Where is the "sex appeal" in chlorine ? What sort of a testimonial could Mrs. Splurge of Newport or Dolly Dimples of Hollywood write for acetone, or salt cake, or diphenylguanidine.

All this is not cynical spoofing—packaged chemicals will bear watching.

Three of our largest companies—two of them prominent in the recent mergers—have been flirting with the idea of merchandizing certain chemicals through retail channels to the public. For one, this proposal has reached only the conference room of the sales department, although its financial and merchandizing aspects have been subjected to scrupulous analysis. Another of the companies has engaged expert advertising counsel, while the third has added to its sales staff a merchandizing executive who has made the proposal that the company undertake an extensive radio campaign.

Such activities are more than a coincident. Are we witnessing the start of a great departure from the traditional sales policies of the American chemical industry which has concentrated upon bulk sales for industrial purposes and to whom the very thought of "package peddling" has been repulsive ?

There have always been a few heretics. The alkali companies, following the lead of Michigan, have sold washing sodas to laundrymen, janitors, and the hotel stewards. General Chemical Co. made a rather unhappy attempt to market baking powder to the housewife. Packaged lye has long been a major activity of the Pennsylvania Salt Co. Packaged insecticides have for years been sold by Dow, General Chemical and Grasselli. Barrett merchandizes sulfate, roofing, and road tars through commercial channels. T. S. P. has been a favorite for consumer marketing. Quite recently Koppers has begun packaging sulfate, and two chemical companies, not primarily in the fertilizer field, Federal Phosphorous and Grasselli, are both selling small package plant food.

Certain basic conditions tend favorably in this direction. Distribution costs, admittedly exorbitant, are being cut by eliminations in many lines most vividly presented in the difficulties of jobbers and the growth of chain stores. Is the assemblying-packing manufacturer, who produces cleansing fluid out of carbon tetrachloride by pouring it into a two ounce bottle, or by similar simple processes turns acid into a disinfectant, T. S. P. into washing compounds, acetylsalicylic acid into aspirin, in so unsound an economic position that he too, will suffer elimination ? Obviously he is a weak link in the distribution chain.

Is vertical expansion a logical development of huge concentrations of chemical production, an inevitable next step, as it were, in the merger movement ? It at least appears probable that this may be so.

A very helpful factor in more direct approach to the ultimate consumer, would undoubtedly be the wide popularization of chemistry during the war. Chemicals are no longer suspicious characters. In fact, they are distinctly favored. Synthetic products no longer appear to be nasty substitutes, only to be tolerated because of their cheapness; but they are recognized as true economies in the broadest sense and even welcomed as such. Oleomargarine slunk in the back door; hydrogenated oil from the first boldly proclaimed its chemical origin. Who thinks any the worse of rayon, or celotex, or bakelite, or cellophane, or even of lacquer because they came from the chemical laboratory to compete with the products of Nature's workshops ?

If this invasion of commercial markets continues what vast effects it will have upon the chemical industry. It will seriously disturb existing industrial consumption. It will turn chemical sales methods up-side-down.

Progress and Profits

Before Wall Street and Chemical Industry became quite so familiar with each other's activities, bankers were prone to complain that investments in chemical securities were highly speculative. They based this assumption on the grounds that chemical processes and products are in a constant state of flux and that new developments were likely at any time to make a product or a process absolete to such an extent as to impair the earning capacity of the producing company and destroys the investment value of its securities.

Their major premise was, and is, true. The very life of organizations producing chemicals depends upon new developments. But the logic which decided that chemical securities were therefore, uncertain investments, was at fault. The continued financial progress of

such representative chemical companies as outlined in our pages this month, bears mute evidence in actual fact, of the falsity of such deductions.

The reason for this mistaken conclusion is fairly obvious and by this time, fairly well understood. In the first place, these new developments do not strike with the lightning-like rapidity with which they flash upon bankers and the laity generally. Recent years have seen almost revolutionary changes in chemistry, but these changes have really resulted from a slow progress and continual technical research. At any given moment there are literally thousands of potentially important chemical developments discovered, tested, and filed, but in no case is their industrial application immediate. There are too many other factors, chiefly economic, involving commercial production and commercial marketing, which must first be considered and solved. In many cases, new scientific discoveries must be tabled indefinitely until other discoveries come along to help make the first economically possible.

These facts have long been recognized in the chemical industry, but they may well bear repetition since in them lies the creed of the successful chemical executive. Not only must he be able to meet the needs of and adapt himself to the changes in conditions; not only must he foresee the next step in the immediate future; but his plans must also constantly take into consideration the changing industrial values of the distant future which may remove from him entirely markets upon which, in the present, he is depending.

The Ass and His Reputation

Distinctly pertinent to the article in this issue on the high cost of price cutting is a little tale told in the textile journals. It seems that the donkey had not shown his true colors when the world was young and was widely esteemed as a most sagacious beast. A famous sheik, exceeding proud of his large herd, invited the Prophet himself to test their wisdom. Mahomet addressed the asses. "Let us test your wisdom," said he. "Answer me this question: What should an ass require for a three days' journey ?"

And they counselled among themselves and then made reply: "For a three days' journey, O Prophet, any ass should require six bundles of hay and three bags of dates."

Which answer was considered eminently wise by the assembled company.

The Prophet answered, "Wait," and he again addressed the asses. "I have to make a three days' journey, but I will not give you six bundles of hay and three bags of dates for making it. Let him who will go for less, stand forth."

And behold, they all stood forth and began to talk at once. Each underbid the other until finally one especially long-eared ass agreed to go for one bundle of hay.

Then spoke the Prophet, "Fool, you cannot even live for three days on one bundle of hay, much less profit from the journey."

"True," quoth the long-eared one, "but I wanted the order."

And from that far-off day to this, asses have been known as fools, and price cutters have been known as asses.

Quotation Marks

It is not science that is to blame for any soul-deadening applications of the new knowledge it is constantly bringing to light; the blame must lie on those who commercially exploit such knowledge in a spirit entirely alien to the original scientific quest after truth for its own sake.—*Chemical Age.*

Chemists and physicists have ceased to be luxuries in industry, and are now the essential craftsmen who lay the scientific foundations on which the superstructure of successful industry and commerce is raised.—*Sir William Alexander.*

The future of the chemical industry in America is assured by the large number of strong factors, who are able and anxious to spend vast sums in research and development work.—*Alex. C. Fergusson, Jr.*

Ten Years Ago

(From our issues of February, 1920)

Monsanto Chemical Works elected the following officers: chairman of the board, John F. Queeny; president, Gaston Du Bois; vice-president, Howard O. McDonough; secretary Edward M. Queeny.

Orlando F. Weber was appointed president, chairman of the board, and chairman of the executive committee, of the National Aniline & Chemical Co.

E. M. Allen was elected president of the Mathieson Alkali Works succeeding E. E. Arnold, resigned, and the offices of the company were moved from Providence to New York.

Davison Chemical Co. issued 50,000 shares of additional stock of no par value at $40 per share to retire several outstanding notes.

Ciba Co. was incorporated with capital of $200,000 with following incorporators: A. R. Palmer, G. F. Handel, and I. Reid.

Warner Chemical Co. increased capital from $1,000,000 to $2,000,000 to provide for proposed expansion.

Barium chloride was selling for $160.00 per ton.

By Order *of the* Board of Directors

[A review of the balance sheets and programs of leading chemical companies]

FINANCIAL matters loomed large in the chemical chronicle of 1929. Dividends in cash and stock; purchase rights to stockholders; sales of securities on the open market; mergers under a wide variety of terms; programs of expansion both for research and in plant capacity; all these have made an important part of the chemical news of the past twelve months. The results of these financial decisions will be far-reaching. Accordingly, rather than present a dull—and it must be confessed a meaningless—table of assets and liabilities, profits and losses we have summarized, the acts, ordered by the Directors of our leading chemical corporations during the interesting, significant year just past.

Allied Chemical & Dye Corp.

The outstanding feature of the 1929 financial history of the Allied Chemical & Dye Corporation was the declaration in November of an extra 5 per cent stock dividend. With 2,178,109 common shares outstanding, this called for the distribution of 108,905 shares representing about $27,000,000 at the market value. In addition the regular quarterly dividends of $1.50 per share were continued throughout the year on the common, as were those of $1.75 per share on the 392,849 preferred shares outstanding.

The declaration of this stock dividend was in line with the policy advocated by President Hoover for aiding industry and the general economic situation. In announcing the dividend, Dr. William H. Nichols, chairman of the board, said "believing that the real wealth of our country is evidenced by the production and consumption capacity of our people, and the evidence of this wealth is reflected by the industrial corporation as the clearing house for production and consumption, the directors of Allied Chemical & Dye Corporation have declared a 5 per cent stock dividend." There are 856,441 common shares in the treasury to take care of future stock dividends, which, it is intimated may possibly be adopted as an annual policy.

Since the organization of the company at the end of 1920, its earnings have risen steadily, except for a slight set back in 1924, reaching a peak of $11.11 per share for 1928. The past year's earnings should not interrupt this upward trend since the unexampled industrial activity of the first ten months' of 1929 made for an exceedingly prosperous year. With its well diversified line of chemicals, furnishing raw materials to practically every branch of industry, Allied undoubtedly enjoyed a peak profit year. Net income and common share earnings after all charges for 1921-1928 inclusive have been as follows:

Year	*Net Income*	*Earnings Per Share*
1928	$26,962,442	$11.11
1927	24,586,872	10.02
1926	24,072,820	9.78
1925	20,566,592	8.12
1924	18,539,961	7.25
1923	19,148,472	7.54
1922	15,114,472	5.68
1921	7,646,909	2.27

Consolidated current assets December 31, 1928, aggregated $140,443,569, including $15,097,400 cash, $82,710,600 marketable securities and $16,864,400 receivables. Current liabilities totaled $13,292,472, leaving net working capital of $127,151,097. Current assets decreased over $5,000,000 during 1928, reflecting an increase in fixed capital investment growing out of the expansion program of the Atmospheric Nitrogen Corporation at Hopewell, Va. Current assets, liabilities and net current assets since organization have been as follows:

Year	*Current Assets*	*Current Liabilities*	*Net Current Assets*
1928	$140,443,569	$13,292,472	$127,151,097
1927	145,721,908	9,254,643	136,467,265
1926	144,028,503	9,926,088	134,102,415
1925	127,423,767	8,654,682	118,769,085
1924	110,541,108	8,379,589	102,161,519
1923	101,260,783	8,930,779	92,330,004
1922	86,850,334	11,665,466	75,184,868
1921	74,711,561	8,285,909	66,425,652

As is generally well known, Mr. Weber has always maintained an exceptionally conservative financial policy. The plant expansion, carried on ever since the company's formation, has all been consummated out of earnings. Despite the unusual obsolescence and depreciation charges on chemical plants, plant valuation has risen approximately $50,000,000 during this period to a total of $196,699,901 at the end of 1928. This figure has doubtless also been higher for 1929, since expansion of the $125,000,000 project at Hopewell has continued during the past year.

The company has no capitalization other than the common and $7 preferred stocks. The present $6 dividend rate on the common was inaugurated in February, 1927, having previously been $4.

Since its incorporation December 17, 1920 in New York, to acquire all the capital stock of General Chemical Co., Solvay Process Co., Semet-Solvay Co., Barrett Co. and National Aniline & Chemical Co., Allied Chemical & Dye Corp. has added two other subsidiaries to this group of constituent companies, the Atmospheric Nitrogen Corp. and Aldyco Corp. The latter was incorporated July 11, 1928 with authorized capital of $30,000,000 preferred stock and 200,000 shares of no par common, to acquire and hold certain of the security holdings of the parent company. The former dates from December 12, 1919 and operates a plant at Syracuse in addition to the new one at Hopewell, for the fixation of nitrogen and the manufacture of nitrogen compounds.

The activities of the older subsidiaries are common knowledge in the chemical industry. General Chemical was formed in 1899; Solvay in 1881, Semet-Solvay in 1916, Barrett in 1903 and National Aniline in 1917. General has 16 plants throughout the country; Solvay plants at Syracuse, Detroit, and Hutchinson, Kan.; Semet-Solvay operates coke plants throughout the country and directly or indirectly controls Ashland By-Product Coke Co., Ashland, Ky., Ironton By-Products Coke Co., Irontown, Ohio, Semet-Solvay Engineering Corp. and Steere Engineering Co.; Barret owns about 32 plants throughout the United States and Canada; and National Aniline has plants at Buffalo and Marcus Hook, Pa.

Officers of the company are: William H. Nichols, chairman; Orlando F. Weber, president; F. J. Emmerick, G. M. Wells, vice-presidents; J. N. Ford, treasurer, and H. F. Atherton, secretary. Directors: Wm. G. Beckers, W. E. Frew, Rowland Hazard, Emmanuel Janssen, Wm. H. Nichols, C. W. Nichols, C. R. Smith, Armand Solvay, W. H. Tuck, O. F. Weber.

American Cyanamid Co.

Even in this merger year, the American Cyanamid's feats of horizontal and vertical expansion are outstanding. To accomplish this notable work, much financing was concurrently done.

Through the issuance of rights, Class B common was increased by almost two and a half million shares, to net the company about $5,000,000, last January. During the same month, arrangements were completed for the purchase of the Calco Chemical Co. by the exchange of 88,370 shares of Cyanamid stock then valued at about $2,000,000, at the rate of 2½ shares of Cyanamid for one of Calco preferred and one for nine of Calco common. In February the company announced a $4,000,000 expansion program to cover the erection of a plant at the new phosphate property near Plant City, Florida; extensions to the Linden plant, additions to the Ammo-Phos plant at Warners to increase the output by 48,000 tons yearly; and installations and additions to increase output at Niagara Falls to 355,000 tons yearly. By the issuance of 10,000 shares Class B common stock, then worth in the neighborhood of $650,000, the company financed the acquisition, during the next month, of a limestone quarry in Canada to supply the Niagara Falls plant.

During April, recapitalization was planned, with common stock increased from 1,000,000, $20 par to 1,600,000 shares no par. According to the scheme of exchange, the company was to have received over $6,000,000 in cash.

American Cyanamid was active throughout July, with plans for the erection of power plants in Tennessee at a cost of $35,000,000; consolidation of assets with the Kalbfleisch Corporation, and declaration of dividends on common and preferred stocks, placing the former on a regular $1.60 annual basis.

The Selden Company was absorbed in August for a consideration of 165,000 shares Class B common, worth at the market approximately $9,000,000. Expansion continued during September when the Class B common authorized was increased from 700,000 to 3,000,000. Preferred stockholders had the option of exchanging one share held for two of the common, with the balance called on October 1 at 120. Further capitalization took place during the succeeding month and in November the company took over the American Powder Company, manufacturers of solvents and nitrocellulose for lacquers, as well as explosives.

The report for the fiscal year ending June 30, 1929 showed the company to have earned a net profit of $2,328,928, equivalent to $3.12 a share on an average of 661,025 shares of common stock outstanding. The surplus account showed $4,484,831, compared to $2,326,874 for the previous year. For the period covered, $13,524,941 had been spent on plant improvements and extensions. Throughout the year, the financing program brought to the company about $38,000,000 in new capital, and it is generally understood that at least two other important chemical units, as yet unannounced, have been purchased.

Capitalization at the end of 1929 consisted of 65,943 shares of Class A which carry the voting power and 2,400,000 shares of Class B. Both stocks share alike in dividends and are now receiving $1.60 a share

annually. Class B stock sold at a low of 20¼ and a high of 69½ during the past year. The bonded debt consists of debentures 5s, authorized $5,000,000, outstanding $4,700,000.

The obvious result of this expansion has been to diversify the activities of the company and strengthen its financial position. Costs have also been reported greatly reduced as a result of the program.

Officers: W. B. Bell, president; J. F. Cooper, J. O. Hammitt, W. S. Landis, E. V. O'Daniell, vice-presidents; R. C. Gaugler, treasurer and assistant secretary; K. C. Towe, R. C. Billingsley, assistant treasurers; W. P. Sturtevant, secretary; G. R. Martin, assistant secretary. Directors: G. G. Allen, W. B. Bell, W. R. Cole, K. F. Cooper, J. O. Hammitt, W. S. Landis, W. S. Lee, G. R. Martin, E. V. O'Daniell, W. R. Perkins, W. S. Stowell, J. M. Selden, H. L. Derby, R. C. Jeffcott, R. S. Childs, R. C. Gaugler, W. P. Sturtevant.

Commercial Solvents Corporation

For the first time since its incorporation in 1919, Commercial Solvents has expanded vertically through the acquisition, in October of the Commercial Pigments Corporation. This was done by exchange of 12,000 shares of the old stock at the rate of one for nine of Commercial Pigments, which at current rates, placed the value of the purchase at somewhat more than $6,000,000.

The extremely high price of the old stock, quoted at one time at 700, was also a feature of the year, but this was hardly a true reflection of the immediate earning capacity of the company. After a low of 20 in November, present quotations around 30 on the new (10 for 1 of the old) are more nearly in line with present returns.

During the year Commercial Solvents indicated increased earnings and increased potential earning power. In June the new butyl acetate plant to produce the ester on a large scale was completed, in September, an extra dividend of two per cent in stock, worth more than $12 per share held was declared, while a month later stockholders authorized a change in capitalization from 250,000 to 3,000,000 shares of common. At the end of the year the new stock paid 25 cents a share and is to be kept on a $1.00 annual basis, an increase from $8.00 to $10.00 on the old.

Earnings for the year 1929 were about $1,000,000 greater than those for 1928, or considerably greater than for any previous year. Net income has been:

1929	$3,667,402
1928	2,929,420
1927	2,012,875
1926	1,707,791
1925	890,265
1924	1,043,973

Earnings in 1924 were abnormal, reflecting the high prices for the company's products caused by operating difficulties and consequent shortage during the previous year.

Total assets have also been increasing at a comfortable rate, having been $13,232,771 in 1929 as compared to $10,097,171 in the previous year.

The company owns thoroughly efficient plants at Peoria, and Terre Haute. The newly acquired Commercial Pigments plant at Baltimore, operating the Blumenfeld process for producing titanium dioxide pigment, is to be somewhat enlarged.

Progress, aggressively pursued, has been the policy of the company's executives from the beginning (when they undertook to create a market for butanol) and this policy continues to be important in considering future prospects. Utilization of waste gases to produce synthetic methanol (the first domestic manufacture of that commodity), preparations for large scale butyl acetate manufacture, entry into the pigments field, are all just as clear instances of the working of this policy as the active research conducted.

Because of the nature of its products and the uses to which they are put, Commercial Solvents lacks diversity. Butanol is consumed almost wholly in the lacquer industry, the largest outlet for acetone is as a solvent for cellulose esters, while almost half of the total refined methanol production enters into the manufacture of formaldehyde. It is estimated that about 40 per cent of the company's business is derived from the automobile industry.

Officers are: W. D. Ticknor, chairman and president; P. G. Mumford, vice-chairman; T. P. Walker, executive vice-president; W. L. Burton, C. L. Gabriel, H. E. Perry, Arthur Orr, vice-president; A. R. Bergen, secretary; T. F. Carty, treasurer; E. L. Pangborn, compt.; Directors: W. D. Ticknor, P. G. Mumford, W. H. Booth, D. M. Goodrich, W. S. Gray, W. E. S. Griswold, C. B. Ford, H. Jackson, H. Lockhart, Jr., and G. M. Moffett.

Davison Chemical Corporation

Notwithstanding reported adverse general conditions throughout the fertilizer industry, Davison reported a substantial increase in operating income for the fiscal year ending June 30, 1929, resulting from gross sales of $23,000,000. Contributing to these greatly increased sales is the program of expansion which is being followed with reported substantial reductions in costs.

Acquisitions throughout the year were the following: in May, the Berkshire Chemical Company making fertilizers and castor oil; in July, the Central Chemical Company doing an annual business of 120,000 tons of fertilizer, and the Lancaster Bone Fertilizer Co. Additional shares of common stock to the extent of 32,682 shares were issued to cover the cost of these three purchases. In September Davison Chemical took over the Fremont Cotton Oil Company and in November additional fertilizer manufacturers—Wash-

ington, Alexander & Cook and the Oxford Packing Company. The projected erection of a $1,000,000 plant has lead to the purchase of a 15 acre site in Houston.

Because of this program, initiated some time ago, the Davison Chemical Company, originally only a sulfuric acid company, has seriously invaded the fertilizer field. In his statement in the annual report to the stockholders, Mr. C. W. Miller, the president, said:

"Continuing our policy of purchasing strong and well managed fertilizer companies, the Davison Company has grown in two years to be one of the most important factors in the fertilizer industry. Gross business last year exceeded $23,000,000, against $15,000,000 in the preceding fiscal year.

"Operation of the first sulfuric acid unit using silica gel as a contact mass has been so successful that we have proceeded with our program of putting all our acid production on this basis. We are erecting 50-ton converters instead of the standard 10 to 15-ton capacity size. In the past week the new 50-ton converters have gone into use and are giving greater efficiency than the smaller type.

"Southern Phosphate Corporation, recently taken over, is one of the most economical rock companies in the country."

The consolidated balance sheet for the fiscal year of 1929 showed total assets of $41,188,290, as against $29,451,657 for the previous corresponding period.

Earnings and general financial condition have improved greatly, as shown in the following tabulation:

		Balance	*Earned Per Share*
June 30, 1929		$1,643,434	$2.80
June 30, 1928		2,930,062	7.33 (2.54)
1926	(d)	11,373	
1925	(d)	24,825	
1924	(d)	499,847	
1923		1,223,591	5.59
1922	(d)	608,213	

	Current Assets	*Current Liabilities*	*Net Current Assets*
1929	$10,270,496	$2,610,296	$7,660,200
1928	5,893,091	1,270,455	4,622,646
1926	5,579,854	2,601,749	2,978,105

Earnings for 1928 included $1,914,069 derived from the sale of 80,000 shares Silica Gel Corp. common stock and for 1923, voting trust certificates representing 104,650 shares common stock in the same corporation at $18 a share.

Because of improved operations notably the innovation in the use of silica gel as a sulfuric acid contact mass., and expected income from hitherto unproductive investments, the stock is expected, in the near future, to go on a dividend basis. High for 1929 was 69⅛, low 21¼ and current quotations are at about 30.

Officers: C. Wilbur Miller, president; T. J. Dee, vice-president and treasurer; W. D. Huntington, E. B. Miller, vice-presidents; J. R. Wilson, secretary and assistant treasurer; M. H. McCord, B. F. Newcomer, assistant treasurer and assistant secretary. Directors: Robert Garrett, H. F. Baker, John J. Nelligan, William H. Matthei, Lord Denbigh, A. D. Ledoux, W. N. Gregory, A. C. Read, J. E. Johnson, C. Wilbur Miller, W. D. Huntington, W. Newcomer, M. E. Jenkins, T. E. Cottman, Ernest B. Miller, A. L. Carter, B. F. Newcomer, T. J. Dee, J. R. Wilson, Douglas Thomas.

E. I. du Pont de Nemours & Co.

A year which saw the declaration of two extra common dividends, one of 50 cents and another of 70 cents, and during which the company extended its holdings in several major activities, was brought to a fitting climax by E. I. du Pont de Nemours & Co. when near the close of November it announced plans for a $25,000,000 expansion program to be carried to completion during 1930.

This building program is planned to meet the growing needs of the company's various manufacturing activities which expanded tremendously during 1929 and which bid fair to continue to expand during the present year. Of the amount involved, $16,000,000 will go to complete projects already under way including the completion of rayon plants in the South, the Cellophane plant at Old Hickory, Tenn., a plant for the Viscoloid Co. at Leominster, Mass., and the $3,500,000 expansion of the Du Pont Ammonia Corp. plant at Belle, W. Va., in accordance with plans to triple the methanol and double the ammonia output. Among other expenditures planned for the coming year is nearly $4,000,000 for expansions to plants of the Grasselli Chemical Co., throughout the country, (including about $1,500,000 at Grasselli, N. J.); about $2,500,000 at the du Pont dye works at Deepwater Point; about $2,250,000 on plants of the fabrics and finishing department at Philadelphia, Newburgh, N. Y., Fairfield, Conn., and Parlin, N. J.; about $500,000 on the Krebs Pigment & Chemical plant at Newport, Del.; and various expansion and improvement programs at Wilmington, itself.

During the year, Du Pont acquired Du Pont Rayon and Du Pont Cellophane as wholly-owned subsidiaries; bought the Krebs Pigment & Chemical Co.; secured complete control of Lazote, Inc., which became the Du Pont Ammonia Corp.; and through National Ammonia Co., a subsidiary, acquired the Pacific Ammonia & Chemical Co.

For 1929, earnings of the company were nearly $1,000,000 a month greater than for the similar period of 1928. Earnings for the year were reported at $78,171,730 against $64,097,798 for 1928. This amount was equivalent to $7.09 a share on an average of 10,196,777 shares outstanding during the period, compared with earnings of $6.27 a share on an average of 9,359,374 shares outstanding during the

previous year. Net income and earnings per share since that date have been as follows:

Year		
1925	$24,033,958	$35.12
1926	41,969,574	52.51
1927	45,947,832	57.03
1928	64,097,798	5.97
1929	78,171,730	7.09

Common stocks at present amounts to 10,339,000 shares, while 978,000 debenture shares are listed. The common stock was changed on September 13, 1926, when two no par shares were issued for each share of $100 par stock. On January 21, 1929, the no par common was changed to common of $20 par when 3½ shares of the $20 par stock were exchanged for each no par share. The new $20 par common was placed on an annual dividend basis of $4 per share when an initial dividend of $1 was declared March 15, 1929. In May an extra of 50 cents was declared and in November an extra of 70 cents on this new stock.

Through over thirty subsidiary companies, E. I. du pont de Nemours & Co., Inc., extends its activities into almost every phase of the chemical and allied industries, as well as to other enterprises non-chemical in nature, both in this country and abroad. Its interests are as widespread as they are divergent. The present company was incorporated in 1915 under the laws of Delaware to acquire the properties of the New Jersey corporation known as E. I. du Pont de Nemours Powder Co., incorporated May 19, 1903 to consolidate various explosive manufacturies controlled by E. I. du Pont de Nemours & Co. This latter company and its predecessor, a partnership of like name, had been engaged in the manufacture and sale of explosives since 1802.

The company acquired General Explosives Co. in August, 1924; Excelsior Powder Co. in December 1927; minority interest in du Pont National Ammonia Co. and stockholdings of same group in Lazote, Inc., in March, 1928, after which purchase the ammonia company was dissolved; and the business and assets of the Grasselli Chemical Co. in November 1928. In addition to these and other acquisitions previously referred to as having been made during the course of 1928, the list of this company's subsidiaries includes American Nitrogen Co., Canadian Industries, Ltd., Pacific Nitrogen Corp., Pittsburgh Safety Glass Co., Eastern Alcohol Corp., Bayer-Semesan Co., and many others in this country. South America, England, France and Germany. It operates over 70 plants in this country alone.

Officers of the company are: P. S. du Pont, chairman; Irenee du Pont, vice-chairman; Lammot du Pont, president; F. W. Pickard, W. S. Carpenter, Jr., J. P. Laffey, A. F. du Pont, W. C. Spruance, Charles L. Patterson, F. G. Tallman, R. R. M. Carpenter, H. G. Haskell, H. F. Brown, W. Coyne, J. J. Raskob, W. P. Allen, and J. B. D. Edge, vice-presidents; A. B. Echols, treasurer; and Charles Copeland, secretary.

Mathieson Alkali Works

Mathieson's plans for modernization and expansion of plant facilities took form impressively and began to show results during the year just past. The $2,300,000 resulting from changes in the capital plan and the sale of 59,000 shares of new common is to be used for enlarging plants and making new products during the next four years. This expansion has quite sufficient justification in the present and future prospects for the textile industry in general and that branch of it having to do in particular with synthetic fibers, for Mathieson is one of the world's largest producers of chlorine, much used in bleaching, and is an important factor in caustic soda production, required in the viscose process. The company, incorporated in 1892, has not been slow to profit from advances in technical knowledge.

At the end of March stockholders ratified an increase in the authorized common stock from 200,000 to 1,000,000 shares, resulting in a stock dividend of 300 per cent. On December 31, 1929, 635,763 shares of common were outstanding. Quarterly earnings for the second quarter were reported to be the largest in the history of the company.

Total assets on June 30, 1929 were $18,625,360 as compared with $17,922, 643 at the end of the previous year. The total surplus also showed an increase, while current assets were $3,827,847 to cover current liabilities of $1,012,976, as against $3,592,186 and $1,012,976, respectively, at the end of 1928. In June, the new stock was placed on a $2 annual basis, being an increase from $6 to $8 on the old stock. Net income after deductions for the third quarter was $609,532, almost equalling the record set in the previous period, while for the nine months ending September 30, 1929, it was $1,726,904, equivalent to $2.70 per share of common stock as compared to $1,560,020 or $2.43 per share for the corresponding period in 1928.

The following table illustrates the increasing earning power of the company:

Year	*Net Income*	*Common Earned Per Share*
1928	$2,091,402	$13.04
1927	1,832,917	10.93
1926	1,679,486	9.88
1925	1,465,033	8.42
1924	873,064	5.35
1923	1,096,944	6.81

During 1929 the common sold at a low of 29 and a high of 72 with current prices around 40. There is no bonded debt. Capitalization consists of $3,500,000 preferred stock, par $100, paying 7%, and 1,000,000 shares no par common. Each share of the preferred is entitled to two votes and is not callable except for sinking fund.

Officers: E. M. Allen, president; C. F. Vaughn, vice-president and mgr. Niagara Falls plant; J. A. Kienle, vice-president in charge of sales; E. A. Hults,

vice-president and manager Saltville plant; H. F. Hyland, secretary and treasurer; Howard Berry, compt.; Rushmore Bisbee & Stern, General Counsel. Directors: R. G. Stone, Eldon Bisbee, C. J. Schmidlapp, H. F. Hyland, E. M. Allen, R. F. Hoyt, Charles Hayden, J. R. MacColl, M. G. Chace.

Monsanto Chemical Works

For Monsanto, as with so much of the chemical industry, 1929 was a year of expansion and increased earnings, with the purchase of five organizations in related manufacturing fields and a probable increase of earnings throughout the year of at least twenty-five per cent, continuing the upward trend since 1924. About $1,000,000 was spent on extensions and improvements during the year.

The Rubber Service Laboratories, manufacturing a line of chemicals used in rubber processing, was consolidated with Monsanto at the end of June, and the Graesser-Monsanto Chemical Works, Ltd., an English subsidiary, purchased outright the business, manufacturing facilities, and good-will of the British Saccharin Manufacturing Co., of Baxenden, Lancashire, during the next month. In October, Monsanto acquired the Merrimac Chemical Co., manufacturers of heavy chemicals, acids, solvents, and lacquers, with assets valued at approximately $9,000,000, by means of an exchange of 1⅛ shares for one of Merrimac. About the same time, Mathieson sold its fine chemical division to Monsanto. At the end of the year, Graesser-Monsanto purchased the Sunderland Tar Distilling Works with an annual tar distilling capacity of 60,000 tons.

At the end of 1928, authorized common stock was increased from 100,000 to 160,000. In July 1929, however, this was increased to 500,000 with two shares of new given for one of the old stock held. Stock dividends of 10 per cent in February and of 1½ per cent in August and October were declared.

For the three-quarter period ending September 30, 1929, reported net earnings after all deductions were $878,840 equivalent to $2.83 per share for 310,852 shares as compared with earnings for the same period in the previous year of $682,980. Current assets at the time were $7,099,361 and current liabilities $1,523,470, showing the company to be in a strong liquid condition, Total assets were $24,393,286.

Officers: John F. Queeny, chairman; E. M. Queeny, president; Gaston DuBois, J. W. Boyer, vice-president; J. W. Livingston, Jules Bebie, L. F. Nickell, assistant vice-president; W. W. Schneider, secretary; W. R. Phemister, treasurer; J. G. Gillis, assistant to president; A. G. Fletcher, Compt.; C. A. Zacher, assistant secretary; J. W. Ludwig, auditor. Directors: J. F. Queeny, H. O. McDonough, Gaston DuBois, E. M. Queeny, Theodore Rassieur; J. D. Lumaghi, J. W. Livingston, Philip Stockton, Charles Belknap, J. H. Becker, H. W. Murray.

Union Carbide and Carbon Corp.

Undoubtedly one of the outstanding financial events of the year was the Union Carbide $53,000,000 common stock issue, the largest chemical financing yet undertaken. This additional capital is to be used for expanding the chemical and metallurgical divisions and developing power resources here and in Norway. Capacity of 120,000 h.p. will be added to the 250,000 h. p. now used. Earlier in the year, the corporation acquired the Meraker Smelting Co., Ltd., owning and operating 4 hydro-electric power stations in Norway. About 35 subsidiaries in all now make up the Union Carbide and Carbon Corporation.

Quite as striking are the chemical developments during the year of its subsidiary, Carbide and Carbon Chemicals Corp., which began to market synthetic acetone in March, synthetic methanol in December, and plans to be producing synthetic ethyl alcohol, beginning next August at the rate of 10,000,000 gallons yearly. Aside from the additional income that will undoubtedly arise from these new products, these innovations are strongly indicative of the parent company's all-embracing spirit of progress, which naturally shows in the reported earnings.

Earnings for the nine month period ending September 30, 1929 were $24,050,664, an increase of almost 23 per cent over the corresponding interval for the year before, or $2.89 per share to pay the dividend requirements of $2.60 for the whole year. In April 2,742,072 shares of common stock were split at the rate of 3 for 1. The constantly upward trend of earning power is indicated clearly in the following tabulation:

	Property	*Profit*	*Earning Per Share*
1928.....	$198,198,901	$30,577,382	11.15
1927.....	180,957,975	25,340,660	9.52
1926.....	168,675,358	24,142,606	9.08
1925.....	158,553,543	20,021,327	7.52
1924.....	116,935,104	16,771,322	6.30
1923.....	107,312,385	16,204,414	6.09
1922.....	101,673,118	11,716,114	4.40
1921.....	99,023,965	8,176,896	3.07

Figured on 2,742,072 shares before the split.

For Union Carbide, at least as much as for others in the chemical field, 1929 has been a boom year. Probable earnings for 1929 have been in the neighborhood of $35,000,000, or at the rate of more than $13 on the old shares. Meanwhile, the decidedly conservative dividend attitude of the corporation, in view of probable continued expansion, is expected to continue.

The parent holding company at the end of 1928 had assets totalling $281,510,353, an increase in the past five years of about $60,000,000 or almost 27 per cent. Capitalization is extremely simple, as there are 12,000,000 shares of common stock authorized, no preferred, and no bonded debt. Preferred stocks and bonds for some of the subsidiaries, however, are still outstanding.

Some of the major subsidiary corporations are the Acheson Graphite Company, the Carbide and Carbon Chemicals Corporation, the Linde Air Products Co., the National Carbon Co., Inc., the Oxweld Acetylene Co., the Prest-O-Lite Co., Inc., and the Union Carbide Co.

Officers: C. K. G. Billings, chairman of Board; J. J. Ricks, president; M. J. Carney, W. J. Knapp, B. O'Shea, W. F. Barrett, Giles W. Mead, Rafferty, vice-presidents; W. M. Beard, secretary and treasurer; Directors: C. K. G. Billings, G. W. Mead, Jessie J. Ricks, Edward F. Whitney, Nicholas F. Brady, G. W. Davison, F. C. Walcott, J. P. Day, Milton Ferguson, James Parmelee, Andrew Squire, G. M. Reynolds.

U. S. Industrial Alcohol

To the earnings of a good year, the U. S. Industrial Alcohol Co. now adds the income derived through the purchase in June of the Kentucky Alcohol Coproration from the National Distillers' Products Corporation, and acquisition, in November with Air Reduction, of a 75 per cent interest in the Pure Carbonic Company of America. The Kentucky Alcohol consolidation took place through the issue of 51,000 shares of common stock, and results in an addition to the alcohol quota of the company of 10,000,000 gallons, making the U. S. Industrial Alcohol the producer of about 40 per cent of the total alcohol in this country. Meanwhile the projected output of cellulose acetate more cheaply than has so far been possible, is apparently still in the development stage.

Earnings for 1929 were between $13 and $15 a share for 371,000 shares of common, placed on a $6 annual basis, all the preferred having been called, but exact figures have not yet been made public. For the first six months reported earnings were $1,696,051, equal after charged to $5.30 a share on 320,000 shares then outstanding, and representing an increase of nearly 50 per cent over the $1,188,104 or $3.71 a share earned in the first half of 1928. In the full year 1928, the corporation reported $3,703,200, equal to $11.81 a share; thus profits for 1929 of around $5,000,000 or more would represent a substantial increase. As of June 30, 1929, current assets totaled $16,326,704 including $4,930,799 cash and secured loans, against $3,515,790 current liabilities. Total asset at the end of 1928 were over $40,000,000. Assuming earnings to have been as estimated for the last half, it is not improbable that cash was up to $7,000,000 by the end of the year.

Important subsidiaries are Agni Motor Fuel Co., Curtis Bay Copper and Iron Works, Inc., Pennsylvania Alcohol and Chemical Company, U. S. Industrial Chemical Company, Inc., James A. Webb & Sons, Inc., Wood Products Co., and Cuba Distilling Co. The Air Reduction Co., now controlled by the same interests controlling U. S. Industrial, is a large holder of Alcohol common. During the summer at least 50,000 shares were held and it is understood that there were substantial additions made to the holdings during the November break.

There are no obligations ahead of the 390,000 shares of common stock now outstanding, selling currently at around 115 as against a high of 243⅝ and a low of 95 for 1929.

Officers: C. E. Adams, chairman; R. R. Brown, president; Glenn Haskell, A. A. Bachaus, Sid Klein, vice-president; F. G. Fennessey, treasurer; Joseph Malone, secretary; F. C. Watkins, Auditor. Directors: C. E. Adams, Jules S. Bache, George S. Brewster, P. J. McIntoch, R. R. Brown, F. B. Adam, G. H. Walker, A. H. Larkin, J. H. Witte, Jr., W. L. Johnson, O. C. Jennings, Matthew C. Brush, W. M. Crane, Jr., S. F. Pryor, H. A. Arthur.

The Filter Press

Du Pont has fourteen vice-presidents. They are: F. W. Pickhardt, W. S. Carpenter, J. P. Laffey, A. F. du Pont, W. C. Spruance, Charles L. Patterson, F. G. Tallman, R. R. M. Carpenter, H. G. Haskell, H. F. Brown, W. Coyne, J. J. Raskob, W. P. Allen, and J. B. D. Edge.

The beautiful Tudor palace home of Theodore Swann (Federal Phosphorus Company and others too numerous to mention) is used to illustrate the modern home decoration number of the "Junior League Magazine" last month.

John J. Watson, president of the International Agricultural Corp., contributed an article on "Farm Relief and Fertilizer" to the annual business review number of the "New York American," published, January 7th.

E. L. Starr, formerly director of the Rayon Institute, is now supervisor of the activities of the Durene Association, a new organization to secure nationwide recognition of the best grade of mercerized yarn, known by the generic term of "durene."

Herbert H. Dow's first invention—over a hundred chemical patents now stand to his credit—was a chicken incubator heated with a kerosene lamp.

John Kienle, in charge of the Mathieson sales, is a member of the stockholders committee straightening out the affairs of the International Combustion.

Godfrey L. Cabot, carbon black pioneer, is a member of the Board of the Watch and Ward Society which censors the books in Massachusetts.

Doctor Billie Hale, research dynamo of the Dow organization, is driving a 1923 all aluminum Marmon which is not "For Sale" or "Exchange."

William M. Rand, Bostonian, fisherman, yachtsman, and salesman extraordinary of Merrimac, was Captain of the Harvard Track Team, and member of the American Olympic Team.

Herman A. Metz is a member of the auxiliary committee of the 50th anniversary fund of the United Hospital, New York.

William H. Nichols, chairman of the Board of the Allied, has gone to Hawaii.

WHAT Does It Cost to Cut Chemical Prices

For the same profit

5% cut requires 12 2/3% increase.
8% cut requires 35 1/8% increase.
10% cut requires 50% increase.
12 1/2% cut requires 75% increase.
15% cut requires 112 1/2% increase.

UNDER the pressure of competition chemical prices begin to fall. All the careful planning which had established a certain price level as the lowest possible, taking costs and an adequate profit into consideration, is disregarded. The buyer is quoted a shaded price by one seller, he repeats this price to a second salesman, who either meets it or beats it. If he beats it, the first seller will in all likelihood cut under the new low. Thus a price war is declared. What does such a battle cost the combatants ?

A lower price based upon logical economic considerations of cost comes as a result of natural causes and is not abortive in any sense. Cheaper raw materials, lower production costs, new processes, widening markets, less sales expense and other results of scientific, mechanical or economic progress, logically enough should and do lead to lower prices.

But when prices are lowered for any unsound reason, it is almost an economic impossibility for the end to justify the means.

When a price is cut without any other justification than to meet or beat competition, nine times out of ten the chemical manufacturer will justify this move on the ground that the increased volume of business lowers the cost per unit to produce and sell. This principle is true, but on an extremely limited scale.

EXHIBIT I

COMPARISON OF EFFECT OF INCREASING SALES BY INCREASED SELLING EFFORT AND BY PRICE CUTTING

Assumed: Normal Productive Capacity, 20,000 tons
Capital Investment, $150,000

	Schedule 1			Schedule 2			Schedule 3			Schedule 4			Schedule 5		
	Amount	% of Sales	Per Ton	Amount	% of Sales	Per Ton	Amount	% of Sales	Per Ton	Amount	% of Sales	Per Ton	Amount	% of Sales	Per Ton
Production and Sales - Tons	16,000			18,000			20,000			18,000			20,000		
Selling Price Per Ton (net cash basis)	31.00			31.00			31.00			30.00			29.00		
Gross Sales	496,000.00		31.00	558,000.00		31.00	620,000.00		31.00	540,000.00		30.00	580,000.00		29.00
Less Prepaid Freight and Hauling	48,000.00		3.00	54,000.00		3.00	60,000.00		3.00	54,000.00		3.00	60,000.00		3.00
Net Sales	448,000.00	100.00	28.00	504,000.00	100.00	28.00	560,000.00	100.00	28.00	486,000.00	100.00	27.00	520,000.00	100.00	26.00
Factory Cost of Sales:															
Materials (including unloading labor and freight)	313,600.00	70.00	19.60	352,800.00	70.00	19.60	392,000.00	70.00	19.60	352,800.00	72.60	19.60	392,000.00	75 39	19.60
Factory Labor	17,600.00	3.93	1.10	19,800.00	3.93	1.10	22,000.00	3.93	1.10	19,800.00	4.07	1.10	22,000.00	4.23	1.10
Direct Factory Expense	11,200.00	2.50	.70	12,600.00	2.50	.70	14,000.00	2.50	.70	12,600.00	2.59	.70	14,000.00	2.69	.70
Indirect Factory Expense	18,000.00	4.02	1.13	18,000.00	3.57	1.00	18,000.00	3.22	.90	18,000.00	3.70	1.00	18,000.00	3.46	.90
Total Factory Cost of Sales	360,400.00	80.45	22.53	403,200.00	80.00	22.40	446,000.00	79.65	22.30	403,200.00	82.96	22.40	446,000.00	85.77	22.30
Gross Profit	87,600.00	19.55	5.47	100,800.00	20.00	5.60	114,000.00	20.35	5.70	82,800.00	17.04	4.60	74,000.00	14.23	3.70
Selling Expenses	32,000.00	7.14	2.00	36,000.00	7.14	2.00	40,000.00	7.14	2.00	32,000.00	6.59	1.78	32,000.00	6.15	1.60
Administrative Expenses	30,600.00	6.83	1.91	30,600.00	6.07	1.70	30,600.00	5.47	1.53	30,600.00	6.30	1.70	30,600.00	5.89	1.53
Total Selling and Administrative Expenses	62,600.00	13.97	3.91	66,600.00	13.21	3.70	70,600.00	12.61	3.53	62,600.00	12.89	3.48	62,600.00	12.04	3 13
Net Operating Profit	25,000.00	5.58	1.56	34,200.00	6.79	1.90	43,400.00	7.74	2.17	20,200.00	4.15	1.12	11,400.00	2.19	.57
Financial and Capital Expenses:															
Fixed Expenses	5,400.00	1.21	.34	5,400.00	1.07	.30	5,400.00	.96	.27	5,400.00	1.11	.30	5 400.00	1.04	.27
Variable Expenses	9,600.00	2.14	.60	10,800.00	2.14	.60	12,000.00	2.14	.60	10,800.00	2.22	.60	12.000.00	2.30	.60
Total Financial and Capital Expenses	15,000.00	3.35	.94	16,200.00	3.21	.90	17,400.00	3.10	.87	16,200.00	3.33	.90	17.400.00	3.34	.87
Net Profit	10,000.00	2.23	.62	18,000.00	3.58	1.00	26,000.00	4.64	1.30	4,000.00	.82	.22	6,000.00*	1.15*	30 *
Rate of Operation to Normal Capacity	80%			90%			100%			90%			100%		
Return on Investment	6.67%			12%			17.33%			2.67%			4%*		

*Red

Too frequently the relation between the big cut in selling price and the comparatively little saving in cost is overlooked. Price cuts are usually made in terms of dollars per ton, while savings in cost per ton to produce and sell can always be measured in cents.

Price Cuts and Profits

As a striking and concrete example of just how this works out in actual practice, the seller of chemicals may well look upon the accompanying exhibits which illustrate the effect of a price-cutting policy upon profits, as worked out in one branch of the chemical business which has had a proverbially intimate experience in such matters—the fertilizer industry.

In the illustration, for which the data was gathered by the National Fertilizer Association, a medium size plant has been assumed, with an invested capital of $150,000, a normal capacity of 20,000 tons annual output, which can be accomplished under favorable conditions without any strain upon producing or marketing facilities, and a maximum capacity somewhat in excess of this figure. Also assumed is an average grade of fertilizer upon which a fair cash price, based upon a prepaid freight of $3.00, would be $31.00 per ton.

Under existing conditions in a certain year it is estimated that sales of 16,000 tons of mixed goods can be assured at the prevailing price of $31.00 per ton. Since this represents only 80 per cent of normal capacity and possibly not more than 60 per cent or 65 per cent of maximum capacity, it is desired to increase sales, if it can be done profitably, and the various methods by which the desired increase in volume might be accomplished are being explored.

Referring to Exhibit I, Schedule 1 represents the results which are to be expected if the sales of 16,000 tons are accepted and no increase obtained. Schedule 2 represents the effect of an increase in sales to 18,000 tons if prices that include cost plus a reasonable profit can be maintained. Allowance is made for a proportionate increase in selling expenses. Schedule 3 shows the effect of an increase in sales to the full normal capacity of 20,000 tons, if prices can be maintained. Allowance has also been made in this schedule for a proportionate increase in selling expenses.

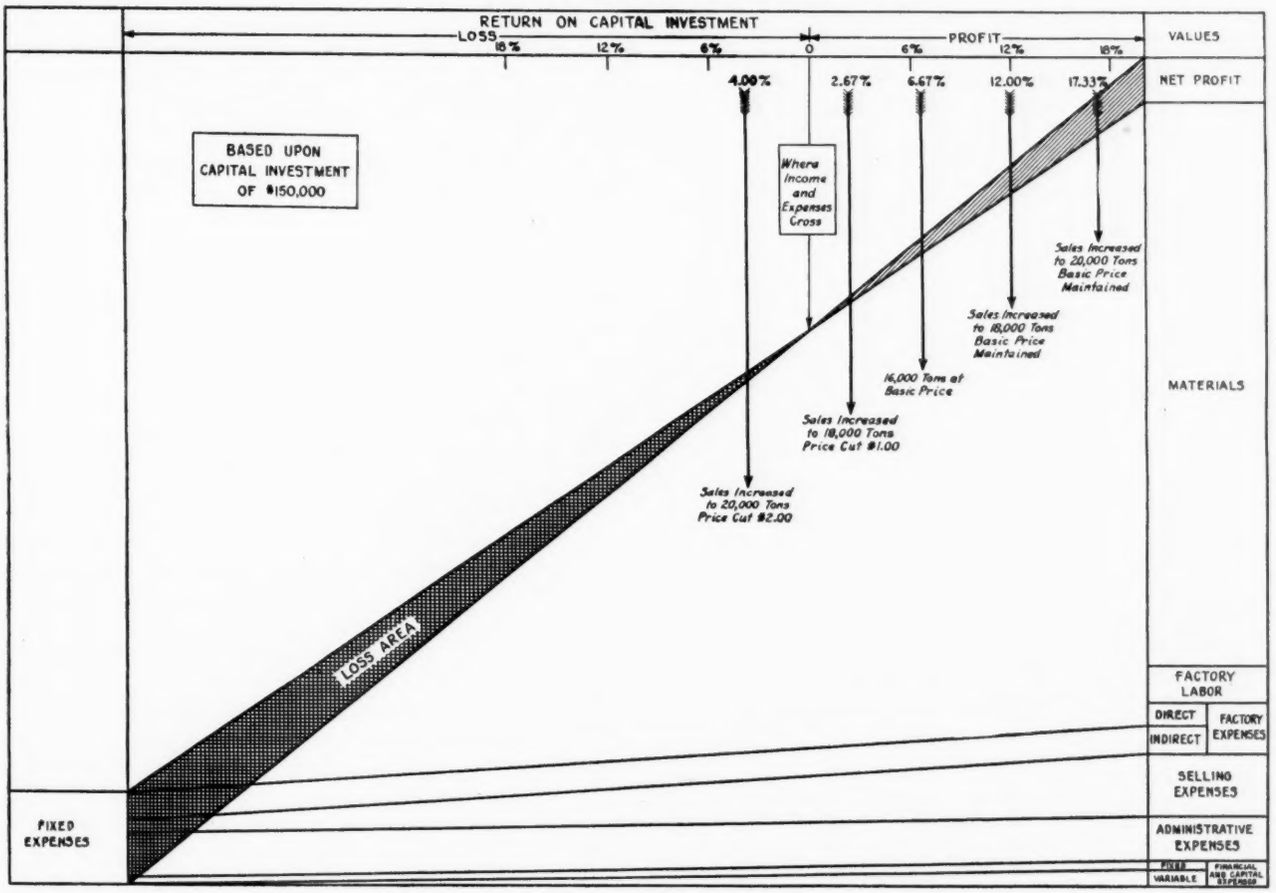
Increasing Sales by Lower Prices

Schedule 4 indicates the result of an attempt to increase sales from the basic 16,000 tons to 18,000 tons by cutting the price $1.00 per ton below the compensatory level assumed at the outset. Since the attraction of a cut price is offered, it is assumed that no increase in selling expenses will be necessary, and this results in an actual reduction in the per ton cost of selling. The ultimate effect, however, is a net

Exhibit II

CROSS-OVER CHART

Showing Variations in Income Resulting from Different Sales Policies.



profit which is by no means commensurate with the necessary capital investment involved.

Schedule 5 shows the effect of increasing sales from the basic 16,000 tons to 20,000 tons by cutting the fair selling price $2.00 per ton. Here again it is assumed that the price attraction will make unnecessary any increase in selling expenses, and therefore the per ton cost of selling is further reduced. But the final result is a substantial net loss.

The "Cross-Over" Chart

Another very graphic representation of the same idea may be found in the "cross-over" chart, Exhibit II, which was prepared by W. B. McCloskey, cost accountant, National Fertilizer Association. By way of explanation of the chart, the column at the extreme right, under the caption "values," represents a profit and loss statement based upon the figures appearing in Exhibit I. The entire column represents total net sales, and the divisions of the column represent the proportionate amount of income from net sales which may be expected to be spent for expenses, labor and material, the remaining space indicating net profit. Certain items of expense are definitely fixed in that they do not fluctuate with changes in volume of business. Income from sales must exceed the total cost of materials, labor and variable expenses by the amount of these fixed charges before any net profit is earned. The spaces representing fixed expenses have been extended to the extreme left of the chart, retaining the same scale, and the total of these spaces represents the portion of the net sales column which must be allocated to expenses of this nature as long as the business is continued, regardless of the volume of sales.

Lowered Basic Prices Bring Losses

The shaded area included between the lines connecting fixed expenses and net profit indicates the gradual recovery of fixed charges as sales volumes, at any basic price, increase. At the point where the lines cross income equals expenditures and the fixed expenses are recovered, but no profit is earned. Beyond the crossing point to the right the profit area expands as volume of business at the basic price increases. If the basic price is reduced, without an equivalent reduction in costs, the effect is decreased profit or increased loss, which is indicated by the movement of the "per cent of return on capital investment" toward the left, or loss side, of the chart.

Nothing could bring home more clearly the dangers of the cut price policy to increase sales. Producers and jobbers of chemicals have, in a general way, recognized the futility of competitive price wars, but even in the more recent history of the chemical industry, such economic battles have been fought with considerable frequency. Even under the greatest stress, as the foregoing figures and chart have indicated, it is the final result which must be taken into consideration. As has been demonstrated, a cut-price policy may not only involve a smaller net return, despite the increased volume of business, but it may also easily prove an economic luxury representing a distinct loss.

Casale Ammonia Reports 22 Plants in Operation Throughout World

Casale Ammonia Co. reports that twenty-two plants, with 901 metric tons daily capacity of anhydrous ammonia, are now operating throughout the world, as compared with eighteen plants having 655 tons capacity in December, 1927. In addition, new units are under construction for additional daily capacity of 566 tons. Data showing plants operating and additional capacity under construction in different countries are as follows:

Casale Ammonia Plants (Metric tons per day, November, 1929)

	Operating	*Building*
Italy	41	16
Belgium	80	180
Canada	8	...
Dalmatia	...	48
France	388	8
Germany	60	90
Japan	262	200
Russia	24	24
Switzerland	23	...
United States	15	...

The countries increasing the daily capacity since 1927 were as follows (increase in metric tons per day): Belgium, 56; France, 49; Germany, 60; Canada, 8, and Japan, 100.

The Ammonia Casale Co. states that experience has proved that the Casale process operates with hydrogen obtained from coke oven gas or from water gas as successfully as with that derived from the electrolysis of water for which it was originally intended.

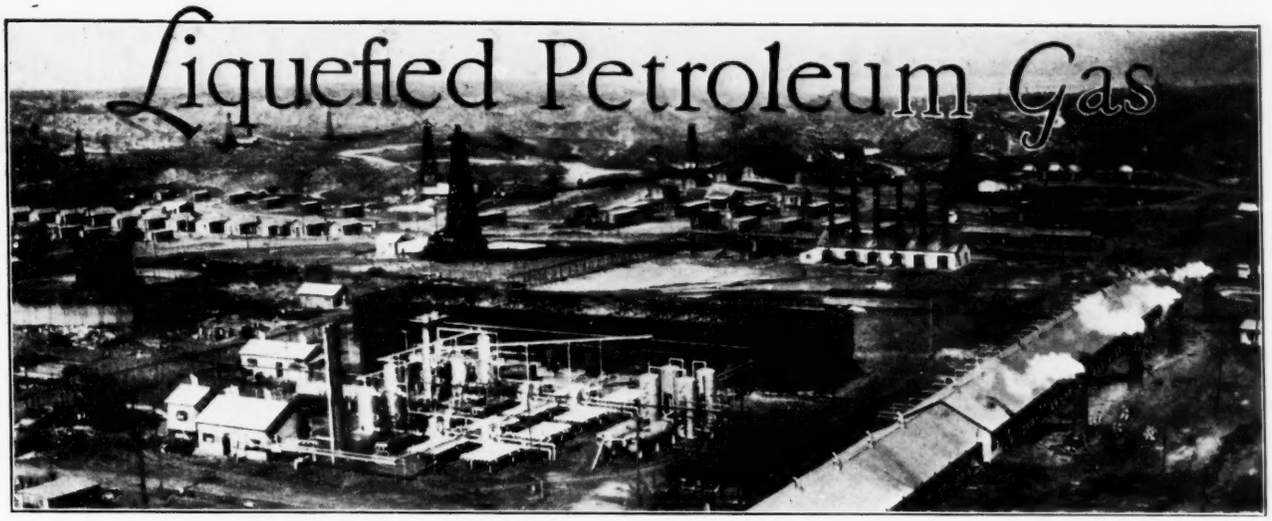
In fact, of the total plants operating on the Casale process, fourteen are using coke oven gas, hydrogen, three water gas hydrogen and one by-product hydrogen.

It is further stated that in the plants using coke oven gas hydrogen, the rated production capacity of the Casele units has been actually exceeded by quantities varying from 25 to 50 per cent in continuous operation.

The Casale process is employed by the Du Pont Ammonia Corp. at its Belle, W. Va., plant for the production of ammonia. That the company purposes to greatly increase its production with the method is seen in an order placed recently for forty-eight coke ovens at a total cost of $2,000,000, the work of installation to be completed at the Belle plant by September 1, 1930.

Bauxite treatment by the action of chlorine gas is reported in Hungary. Process was developed by Prof. E. von Szarvasy. Product obtained is stated to be not only capable of being more readily worked up into aluminum metal than the crude bauxite, but to effect a considerable saving in transport charges. The well-known bauxite deposits in the Bakonyer district of Austria are at present exploited by a German group, and, with the exception of what is used for the manufacture of bauxite cement, is entirely exported. The Hungarian Government has renewed its agreement with the German group, with the stipulation, however, that one-third of the output must, if required, be at the disposal of Hungarian industry.

Liquefied Petroleum Gas



Production and uses of liquefied petroleum gases are herein described by William B. Campbell, Wholesale Manager, Philfuels Co., Detroit. This article, embodying recent developments, is abstracted from a paper presented before the Compressed Gas Manufacturers' Association.

LIQUEFIED petroleum gas was first produced about fifty years ago. A few of the high lights of its allied industries will perhaps assist in establishing it in its proper position in industry.

Although petroleum was known to exist before 1859 when the Drake well was drilled in Pennsylvania, that date really marks the beginning of commercial expansion of the petroleum industry. Kerosene was the original product. In 1880 lubricating oil was first produced.

Pintsch Gas, a compressed gas made by cracking oil, was the forerunner of Blaugas which was the first liquefied petroleum gas manufactured in this country. Blaugas was first sold in the United States about 1907.

While Blaugas was made from the liquefiable gaseous constituents obtainable from an oil cracking process it was known that natural gas was the cheapest source of liquefied hydrocarbon gas. It has also long been realized that in the manufacture of gasoline from natural gas, fractions are extracted which are suitable for the production of liquefied petroleum gases.

The petroleum industry is closely related to the gas industry. Natural gas and crude oil are in most instances found together. The third related industry is the natural gasoline industry, which may be defined as a hybrid, resulting from the combining of the natural gas and refining industries. The first natural gasoline plants were built in 1903 in West Virginia and Pennsylvania, however the industry did not receive commercial recognition until 1911, after the discovery of oil and gas in the Mid-Continent fields.

Source and Manufacture

Natural gasoline from which the present supply of liquefied petroleum gas is taken is the product of a large and expanding industry. As indicated before, most oil wells produce both crude oil and natural gas. The crude oil is sent to the refineries, where motor fuels, kerosene, lubricating oils and other petroleum products are made from it. "Wet Gas" as it comes from the well, usually consists of the well known commercial natural gas, a mixture of methane (Marsh Gas) and ethane, but is partially saturated with other hydrocarbons commonly known as the Natural Gasoline Series.

In the manufacture of natural or so-called casing-head gasoline, the vapor-laden natural gas is taken from the well, compressed in a compressor plant and then passed through condensing coils where a certain amount of liquefication occurs. This liquid portion flows to storage tanks. The remaining gases are conducted to absorption towers where they are brought into contact with a suitable absorbing medium, usually mineral seal oil. This medium absorbs the remainder of the commercially liquefiable hydrocarbons, leaving the methane and ethane to be discharged from the plant for distribution as natural gas.

The mineral seal oil impregnated with gasoline, is pumped from the absorbers to stills, where the gasoline is distilled off. The denuded oil is then cooled and returned to the absorption towers for a new charge of gasoline. The gasoline vapors from the stills are cooled, and the resulting condensate, together with the gasoline produced by the previous stage of compression as well as subsequent stages constitute the total "make" of the plant.

Natural gasoline at this point is a heterogeneous mixture of paraffin, hydrocarbons, propane, butanes, pentanes, hexanes and heavier. Additional processing, by which the propane and a variable part of the butanes are removed is usually undertaken before the product is sold to the refiners as commercial natural gasoline.

The most highly improved methods of rectification and fractionation in the final processing of natural gasolines have been brought to the industry with the result that phenomenally close separation of commercial grades of propane, butanes, pentanes, hexanes and heptanes are now available from natural gasoline.

Since propane and butanes are the predominant compounds in all of the definitely established grades of liquefied petroleum gas, the properties of the commercial grades together with those of a mixture of forty per cent propane and sixty per cent butanes are presented herewith in tabular form:

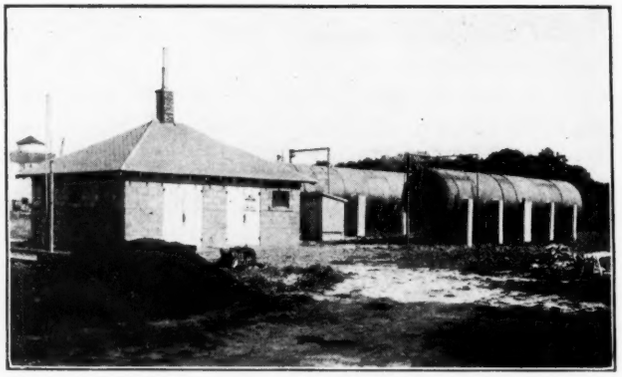
Vapor Pressure Lbs. per Sq. In. Gauge	*G-3*	*G-3.6*	*G-4*
at 70°F	120	68	33
at 90°F	165	95	53
at 100°F	195	113	65
at 105°F	210	122	71
at 130°F	300	180	110
Temp. at which Pressure is 0 lb. per Sq. In. Gauge, °F	−44	−22	15
Specific Gravity of Liquid (Water = 1)	.509	.552	.576
A.P.I. Gravity of Liquid, °A.P.I. 60/60°F	146.4	124.8	114.2
Initial Boiling Point, °F	−45	−13	12
Final Boiling Point, °F	−40	30	30
Weight Per Gallon of Liquid in Pounds	4.24	4.6	4.8
Mean Coefficient of Thermal Expansion			
From 0°F. to 50°F	.001316	.00101	.000908
From 50°F. to 100°F	.00174	.00120	.00118
Specific Gravity of Gas (Air = 1)	1.523	1.80	1.95
Specific Heat of Vapor at 60°F. (Cp)	.475	.468	.458
Dew Point at 14.7 lbs. Absolute, °F.	−44	12	26
Cubic Feet of Gas Per Lb. of Liquid	8.49	7.17	6.7
Cubic Feet of Gas Per Gal. of Liquid	36	33	32
Limits of Inflammability			
Gas Per Cent in Gas-Air Mixture for Lower Explosive Limit	2.4	...	1.9
Gas Per Cent in Gas-Air Mixture for Maximum Rate of Flame Propagation	4.7	...	3.6
Gas Per Cent in Gas-Air Mixture for Upper Explosive Limit	9.5	...	8.5
Maximum Rate of Flame Propagation			
Cm. Per Sec. in 2.5 Cm. diam. tube	82.4	...	82.5
Heating Value			
B. T. U. per Cubic Foot	2,550	3,000	3,200
B. T. U. per Pound	21,650	21,500	21,420
B. T. U. per Gallon	91,800	99,000	102,400
Latent Heat of Vaporization at Boiling Point			
B. T. U. per Pound	186	177	170
B. T. U. per Gallon	788	810	830

Two grades of commercial pentanes are now available to the trade and also three special solvents.

	Grade	*Grade*	*Solvents*		
Reid Vapor Pressure	*G-6A*	*G-5B*	*6*	*7*	*6789*
At 100°F.	17.5	20	..	..	..
Liquid Gravity °A.P.I.	93-95	93-95	75-78	63-67	66-70
Initial Boiling Point °F.	84	80	120	160	120
Final Boiling Point °F.	100	100	170	220	300

Supply

The natural gasoline industry will continue to remain the chief source of liquefied petroleum gas for many years to come. This is due to the fact that the lighter portions of natural gasoline are no longer in great demand for blending with refinery gasoline, the refining industry producing a greater part of its requirements from oil cracking processes. The 1929 production of natural gasoline was over two billion gallons. This is an increase of about one quarter billion gallons over 1928. It is, therefore, quite



Complete Philfuels Process gas plant installation showing liquid gas storage, finished gas storage and building which houses the entire gas premixing and control equipment

evident that liquefied petroleum gases are becoming available in increasing quantities from the natural gasoline industry and that the steady growth of the liquefied petroleum gas markets, witnessed during the past three years can continue in the future without encroaching seriously upon the abundant supply.

Applications and Present Status

Propane, due to its freedom from vaporization difficulties at extremely low temperatures, is by far the predominent gas used for domestic purposes. The growth of this field in 1929 was very satisfactory to those engaged in it. It is estimated that there are now 100,000 domestic consumers of so-called "bottled" gases, an increase of 100% over 1928. From present indications, it is probable that the 1930 growth will be equally as great. This field has been developed and is served by five or six large and well known manufacturing and marketing companies together with thirty or more wholesale regional distributors, in addition to a larger number of local retail outlets.

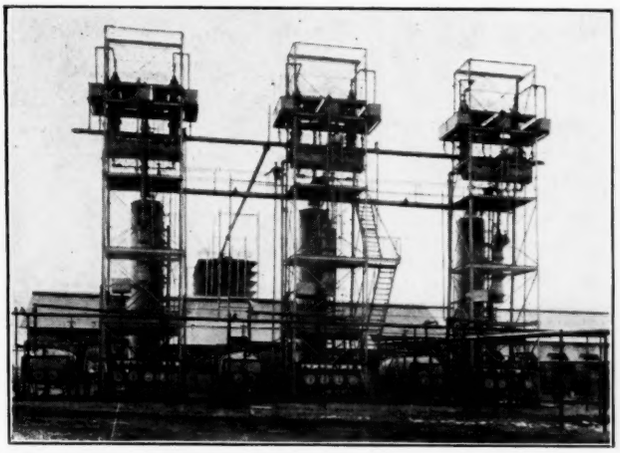
Many gas utility companies are now considering the use of this gas for development of the market just beyond their mains. Due to the widely scattered con-

dition of this market it is uneconomic to reach it with pipe lines. Domestic gas can thus be used by the progressive gas companies as a means of preserving the gas field against the encroachment of electricity.

The average domestic gas customer uses approximately one hundred gallons of liquefied petroleum gas annually. It is accordingly apparent that the domestic gas consumption will be more than ten million gallons during the year 1930. That market in itself affords an outlet for a relatively large volume of liquefied petroleum gas.

Industrial Gas

During the year 1929, commercial butane found a wide application in the field of industrial heating. Such typical metallurgical operations as annealing, hardening, drawing, normalizing, plate heating, carburizing, forging, galvanizing, malleabilizing, soft metal melting, die casting, billet heating, preheating,



Typical fractionation apparatus by which natural gas is separated into its various hydrocarbon fractions—propane, butanes, pentanes and heavier

brazing and soldering were satisfactorily accomplished, as well as excellent performance on such operations as core baking, air heating, drying, jappanning, frit smelting, glass melting, annealing and motor-block testing.

Commercial butane being 100 per cent combustible, of constant thermal value and gravity, free of all contamination by sulphur, tar, germs, dusts and resins and easily unloaded, stored and distributed about the plant, is an advantageous and economical fuel for industrial companies requiring accurate control of furnace temperature and atmosphere.

A very interesting application of commercial butane is its "stand-by" or auxiliary use for industrial plants using natural gas. In the event the supply of natural gas is impaired or interrupted, the burners can be easily and quickly adjusted to use this ideal fuel thereby eliminating a costly plant shut-down.

Commercial butane compares favorably in cost with manufactured gas and due to its various advantages its sale has increased rapidly during the past year. During 1928 only one manufacturer of liquefied petroleum gas was actively engaged in the marketing of commercial butanes for industrial purposes. During 1929 this Company increased its shipments .709 per cent over 1928. Several additional large natural gasoline manufacturers have provided liquefied petroleum gas manufacturing and distribution facilities during 1929.

The use of commercial butane as the sole raw material for gas manufacture is perhaps the most outstanding development in recent years in the gas industry. At the beginning of the year 1929, only one plant producing butane air carbureted gas was in operation. At the close of the year sixteen more were either in operation, under construction or contracted for. The first installation of this type, located at Linton, Indiana, has been in continuous operation for practically two years.

This process known as the Philfuels Process of Gas Manufacture (butane-air carburetion), presents to the gas industry an opportunity of securing additional earnings in communities hitherto considered too small to be profitably served by conventional methods. Recent statistical data show that there are about seven hundred towns of 3,000 population or over which do not have gas and lend themselves to consideration for distribution of butane-air gas. Briefly the Philfuels Process is as follows:

Commercial butane is shipped in Class IVA tank cars and transferred under pressure as a liquid to storage at the gas plant. The liquid gas is passed to a vaporizer where a sufficient amount of heat is supplied to vaporize it completely. The butane vapors leaving this device are maintained at constant pressure by a regulator located between it and the intake of the proportioning machine. This machine automatically proportions air and butane vapor, supplying a mixture of any desired calorific value. The gas-air ratio can be changed, merely by turning a valve. Once set, the proportioning machine does not require further adjustment. The finished gas may be piped from the machine to the low pressure holder, high pressure storage or directly into the mains as necessity requires. A station meter is not needed unless a measurement of distribution line losses is desired.

Undiluted Propane Distribution

Another method of serving the communities above mentioned and those even smaller with gas, is the so-called Undiluted Propane System of Distribution which has been recently devised. The high calorific value propane vapor is piped directly from the top of the liquid storage tanks in undiluted form through pressure regulators to the customers appliances. This system requires lower capital investment and requires no power for operation. The labor cost is reduced to a minimum. With the newly available and improved methods of installing distribution systems e. g. welded steel pipe lines, it is certain that distribution losses can be reduced to amounts com-

parable to those ordinarily obtained in high pressure distribution of low calorific value gases.

Both the Philfuels Process and the Undiluted Propane System of Distribution are ideally suited to serve the new markets or to replace unprofitable plants because of low investment cost, economies in operation, low maintenance and low fixed charges.

Recarburetion

Condensation in high pressure gas transmission lines and its attendant loss in calorific value presents a problem to many gas companies. Recarburetion by the use of liquefied petroleum gas is now being done by several gas companies. Propanes, butanes and pentanes have been successfully used. Local operating conditions and quantities required determine which fuel is most desirable. With the rapid increase in the number of propane bulk stations throughout the country, it is expected that this fuel will be used even more extensively for cold recarburetion.

Gas Enrichment

As the price of gas-oil increases and its quality decreases, commercial butane is coming into increasing favor as a medium for cold enrichment of water gas. The initial cold carburetion installation, United Power and Light Company, Davenport, Iowa has been in operation for approximately two years. About one and one half million cubic feet of blue water gas is carbureted daily with butane as the sole enriching medium. During 1929 two other installations were made. The use of this method of enrichment results in 100 per cent thermal efficiency, automatic control, extreme flexibility and ability to meet all load conditions, with decreased purification and maintenance costs. The necessary utilization equipment for butane enrichment can be installed at a greatly reduced cost compared with that for gas-oil carburetion. There is also a saving in maintenance and fixed charges. A further advantage is that the over-all capacity of a gas set may be increased by producing a greater amount of decreased calorific value water gas and supplying the deficiency by butane enrichment.

Peak Loads

The gas utility companies are in many instances confronted with the problem of supplying peak loads beyond their present maximum plant capacity. These peak loads usually do not occur often enough to warrant the expenditure required to increase the plant capacity to such an extent that this occasional maximum load can be met.

Commercial butane combining the advantages of high calorific value, economic storage and simple conversion to gas is well suited to peak load use. A recent report of the Water Gas Committee of the American Gas Association describes in detail the Louisville Gas and Electric Company peak load installation and its operation. There are ten vertical 15,000 gallon butane storage tanks in this battery. The equivalent capacity in 350 B. T. U. gas is 27, 992,000 cu. ft. The approximate cost of this installation is $37,500.

Special Products

At the present time comparatively large amounts of commercial pentanes are being sold as fuel for gasoline-gas machines. A recent entry in this field, a nationally known organization is providing nation-wide distribution facilities and alone will sell approximately one half million gallons of this fuel during 1930.

The rubber industry offers a ready market for the solvent grades of liquefied petroleum gas. These solvents will, in all probability partially displace benzol and toluol as a rubber solvents, due to their greater safety in utilization and the economies which may be effected by their use. The lacquer and paint industries also offer market possibilities as do the fields for further chemical processing.

The liquefied petroleum gas industry has emerged from the experimental and development stage to that of a recognized business. The progress during 1929 was characterized by rapid increases in the various uses that had been pioneered in previous years. Several additional natural gasoline manufacturers have entered the field. Listed among these are the leaders of this industry. The liquefied petroleum gas consumption in 1929 is estimated by one authority to be in excess of fifteen million gallons.

Russia Encourages Chlorine Use

Chlorine consumption is being encouraged in Russia according to the Soviet official journal. Attention is directed to the various outlets for this commodity, for example, the greater use of chlorine in the Russian flax industry. At present an important part of the flax grown in the country is spun and woven by the peasants themselves, all bleaching being done in the sun and entirely without the use of chemicals. Chlorine is used for water disinfection in only two or three municipalities in all of Russia. The consumption of chlorine by the various branches of the Russian state industry is given as follows:

	Percentage of the Total Consumption		*Percentage of the Total Consumption*
Paper	36.2	Municipalities	3.5
Textile	23.0	Agriculture	2.7
Aniline dyestuff	14.3	Transportation	10.0
Pharmaceuticals	5.7	Sundry	4.6

Ammonium sulfate exported during the first nine months of 1929 from Germany to all countries amounted to 528,933 metric tons, compared with 596,972 for the corresponding period of 1928. The outstanding features of the ammonium sulfate trade were the sharp falling off in exports to Belgium, France, Spain, Cuba, and the United States, and the marked advance in sales to Japan, China, Netherland East Indies. Twenty-four thousand tons were shipped to Russia. In the miscellaneous class covering calcium nitrate, ammonium sulfate-nitrate, and urea, a steady upward trend in sales to Denmark, Netherlands, Japan, Egypt, Italy, Austria and Finland was noted, while the shipments to the United States, Belgium and Czechoslovakia were decidedly lower.

Our Adolescent Lacquer Industry

Growing pains and competitive inhibitions among manufacturers of raw materials and finished products create some trying problems

By William L. Holter

Eastern Sales Manager, Van Schaack Bros. Chemical Works

FOLLOWING the war, and coincident with the availability in practically unlimited quantities of butyl alcohol and half second nitro cellulose, there developed a lacquer industry of very considerable magnitude. While lacquers have been used commercially for a great many years, the chemical restrictions imposed by their raw materials limited them very largely to a protective coating for other finishes rather than as finishes themselves. Out of the post-war developments has grown the present modern lacquer industry, which is in reality an entirely new industry controlled generally by new factors. Its magnitude surprises even those who have been associated more or less intimately with it over its development period; and it can be visualized to-day as still only an infant with enormous possibilities of growth. As in most cases, the problem facing those most intimately concerned is to know just what to do to stimulate that growth in normal healthy channels, without developing abnormalities.

Factors in Future Development

The lacquer industry may well look to two different factors for its development. On the one hand the development of the solid constituents involved and, on the other, the solvent ingredients. Which is the more important is indeed a moot question, but both will contribute; and if the industry is to attain its greatest possible stature, contributions should be about equal.

The solvents used in lacquers to-day are many and varied, but only two stand out as pre-eminent. Ethyl acetate and butyl acetate comprise the bulk of the solvent raw materials, and about them the present-day lacquer evolves. Both of these solvents have decided economic drawbacks preventing them from reaching their ultimate possibilities in the industry. Both are based on raw materials controlled by monopoly—ethyl by governmental restriction, and butyl by patent monopoly. So far this condition has not particularly hampered the industry, but it is nevertheless a generally unsatisfactory one fraught with rather unpleasant possibilities. Were the fanatics in the prohibition lobby to gain a little firmer hand on the situation, we would probably find ethyl acetate so hampered by restrictions as very materially to destroy its usefulness. Patent monopolies on essential raw materials are always dangerous and very generally trend toward a price situation which restricts growth. These conditions have stimulated to a great extent the tremendous amount of recent research toward the development of new solvents, with which to replace either butyl acetate or ethyl acetate, or both.

Solvents for New Resins

This solvent development parallels also the progress made in synthetic gums, and is being guided to some extent at least by the properties of these new products. While ester gums and natural resins require solvents of the present type, it is very evident from results already demonstrated that the new type of synthetic resin is indicating a solvent of wholly different properties. It is well within the bounds of probability that the solvent of the next five years will be important primarily as it will be a solvent for the new gums rather than, as at present, a solvent for nitrocellulose.

We are accustomed in general to refer to the lacquer industry as an entity in itself, but in making such a reference we really refer to two industries; which, unfortunately for both, have been working too much at cross purposes. It is perhaps only natural in the very hectic development of such large business that really mutual interests be confused, and a great deal of waste result. The maker of finished lacquers to-day, and the maker of the raw materials entering into them, are in reality faced with identical problems which can best be solved by co-operation of the very

closest kind. Both parties are vitally interested in the further large development of their combined industries which cannot be properly accomplished without a closer understanding of each other.

An example of the lack of mutual interest shown recently within the industry is clearly illustrated in the present tariff situation. The producers of butyl acetate in the United States have been operating at a loss because of the large dumping importations of German butyl acetate. Briefs in their interest were presented before the House Ways and Means Committee to increase the present tariff; this increase was allowed and so written into the House Bill. The tariff committee of the National Paint Oil and Varnish Association petitioned the Senate Finance Committee to disallow the House Resolution No. 2667 granting an increase in butyl acetate of from 25 per cent ad valorem to 7c per pound; the reason being obviously that the buyers of butyl acetate could presumably get it at a lower price. Followed to its logical conclusion, what would such a condition lead to ?:—control of the most important raw material in lacquer to-day in the hands of the German cartel and the American patent holder on butyl alcohol; practically no competition; and the destruction of a large portion of an important industry in this country; —certainly not desirable conditions to bring about. In citing this case we have no desire to enter into a long discussion of the merits of this particular point, but merely to show our first point, lack of mutual understanding and co-operation. There must be some middle ground in such a situation that will benefit both sides—in other words construction instead of destruction.

Need for Co-operation

Market disorganization on either side upsets and disturbs the other. A chaotic raw material market certainly does not lend itself to stabilized conditions on finished goods. With equal certainty wild cat merchandising of finished products upsets raw material conditions. Perhaps the worst of all is internal strife within a given group. That these conditions are being recognized is evident from the development during the past year of a Lacquer Institute and a Solvents Institute. Their aims are identical in their separate fields, and in direct proportion to the realization of those aims will they each prosper.

We are, as a combined industry, entering into a period of development and readjustment which will tax each and every individual to the utmost if we are to realize the ultimate possibilities facing us. Raw materials for lacquers must be developed that will place them in newer fields. Markets must be broadened by the introduction of more freely available and cheaper basic raw materials, and there must be thorough understanding and co-operation within and between various specific interests involved.

Editor's Correspondence

Editor, CHEMICAL MARKETS:

I have read with interest the able article "Contributions of Chemicals to the Refrigeration Industry" by Mr. John B. Churchill, published in your December issue. In view of my having sent you a letter on the recent Chicago diaster, I will not trouble you with my remarks relating to any of the paragraphs written by Mr. Churchill with the exception of those under the heading of "Ethyl Chloride. '

I want to refer to the mixture of ethyl chloride with methyl bromide, marketed under the trade name of "Methide." As Mr. Churchill mentioned that this was tried in a multiple system it is not to be wondered at that fatalities occurred. We know that the multiple system has been condemned, but why "Methide" should not be used I fail to see. I maintain that fatalities would have occurred and have occurred with any other refrigerant under similar conditions in such a system. The fatalities were due to an "overdose." The material cannot be blamed, but the installation or machine which permits of the overdosing.

As to "Methide," Government tests here with this non-inflammable ethyl chloride (which tests are detailed in a paper read by me before the Fourth International Congress of Refrigeration in 1924) have proved its value, and as a manufacturer of over thirty years' standing of the various halogen derivatives of the hydrocarbons, I can only affirm that during all this time no trouble has occurred during its manufacture or use by any of my employees.

I must mention one particular instance where on a Government refrigerating barge a two-ton ethyl chloride machine was charged with about 40 lbs. of "Methide." This machine was in the hold with other engines, etc., in a space of about 12 feet long by 12 feet broad, with only one narrow opening by a ladder to the deck. A man accidentally broke a guage-glass with a spanner. The refrigerant immediately spurted out over the attendants, covering them with hoar-frost and making their eyes smart. They coughed and sneezed and made their way to the deck. This they had to do in the dark, as the escaping fumes had immediately extinguished two burning oil-lamps suspended overhead. If ordinary ethyl chloride or methyl chloride had been used in the machine the gas would have ignited and the men have been burnt to death. I saw the men the next day, when they were at work as usual and none the worse for their experience.

There must be reasons for the discarding of the refrigerant above-mentioned other than the incidents referred to in Mr. Churchill's article. Possibly its price is too high, although I do not see how this can matter considering its non-inflammability and good working. If a household machine is absolutely tight, as it should be, it does not matter which refrigerant is used nor its cost, for a machine once charged should run for years.

Whilst heartily endorsing Mr. Churchill's remarks about the necessity of the abolition of the multiple system for such refrigerants as methyl chloride, I entirely fail to see why he should blame the refrigerant instead of the system when "Methide" was employed in a similar multiple system.

Yours faithfully,
ALBERT HENNING,
Chairman and Managing Director,
HEDLEY & CO. (LEYTONSTONE) LTD.

Forty-three chemical plants were in operation in Russia during 1928. Output during the year included 294,684 tons of acids, 207,271 tons of soda ash, 55,827 tons of caustic soda and 149,555 tons of superphosphate. In the case of such chemicals as borax, salammoniac, sulfur and hydrochloric acid, in which there is a free market, prices rule at about eight to ten times their level in 1914. In other products prices are just under double the pre-war values, according to the "Chemiker-Zeitung."

E. I. du Pont de Nemours, founder of the company bearing his name, who, in 1801 embarked in the manufacture of explosives at Wilmington, Delaware

Chemical Backgrounds

By Williams Haynes

The third and concluding installment of a series of articles, the first two of which appeared in our November and December issues, depicting the establishment and early days of the American Chemical industry.

IN 1910 a new chemico-economic factor, liquid chlorine, entered the field. When the Germans first produced liquid chlorine in commercial quantities, in 1888, they made strenuous efforts to introduce it into English and American bleaching operations. In England they met the strong prejudice of the bleaching trade, which believed stoutly that the lime in the bleaching powder was necessary to successful whitening practice. In this country, the Germans failed because of the difficulties of transporting steel cylinders and the heavy duty with irksome customs regulations governing the importation of these containers. However, American bleachers did not share the stubborn prejudices of British trade, and American makers of liquid chlorine, once in production, profited by the missionary work of the Germans.

The pioneer American effort to liquify chlorine on a commercial scale was made at Germantown, Philadelphia, upon the suggestion of Dr. Bernard C. Hesse to E. D. Kingsley who, after a successful trial, organized the Electro Bleaching Gas Co. It was soon decided to secure German apparatus, with American rights to the process, and additional capital was raised. The company moved to Niagara Falls, locating next to the Roberts Chemical Co., from whom they purchased chlorine gas; and on September 22, 1909 the first commercial shipment of six small cylinders was made. Mr. Kingsley has confessed that the introductory selling price of 25 cents stood against a cost of 32 cents; but the new company persisted courageously and after repeated discouragements prospered. The Roberts Chemical Co. was sold in 1910 to the recently organized Niagara Alakli Co., which in turn was acquired outright by the Electro Bleaching Gas Co. in 1915.

One of the early triumphs was the successful treatment of drinking water with liquid chlorine at Niagara Falls, during a typhoid epidemic in 1912. In fact, the earliest most definite progress in introducing liquid chlorine was in water purification. To-day over 75 per cent of the people of the country drink chlorinated water, treated at a cost of about one cent a person a year. By the outbreak of the World War the total consumption of liquid chlorine had reached a total of some 3,000 tons. Ten years after the close of the war this had increased twenty-fold, a growth in use due largely to its replacement of bleaching powder, but also to strictly chemical manufacturing uses in dyes, solvents, disinfectants, and chlorinated natural gases.

Chance Develops Carbide Process

Another great branch of our electro-chemical industries grew out of chance experiment. At Spray, N. C., in 1892, James Willson, in seeking for a suitable flux for the production of aluminum, charged his electric furnace with a mixture of coal tar and limestone. Failure resulted and the hard black mass was thrown out on the scrap heap. Following a rain, one of the workmen threw a match on the waste material which burst into sudden flames. Analysis proved the

black mass to be calcium carbide and the flammable gas, acetylene. A little later this new chance-found process was deliberately worked at Holcomb Falls, near Lynchburg, Va., but no effort was made to exploit commercial uses, and an offer of $125,000 for the patents from the Peoples Gas Light Co. of Chicago was gleefully accepted. The first commercial use of calcium carbide was in the generation of gas for lighting and heating purposes; but the better technique of liquefying air led to the Linde and Claude process for the production of pure oxygen, which in turn made possible the oxy-acetylene blow pipe for cutting and welding. Since then, half a dozen new chemical processes using carbide have been developed, but they belong to the story of the war's effect upon the chemical industries.

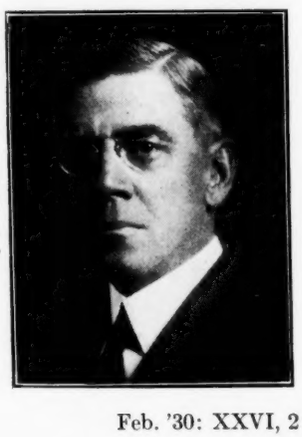
Nitrogen was added to carbide by the process of Frank and Caro in 1893; but the first commercial production of cyanamid was not till 1905 in Germany and Italy. Two years later, F. S. Washburn, after an exhaustive study of the cyanamid processes of Europe, organized the American Cyanamid Co. whose plant began operations in 1909 on the Canadian side at Niagara Falls. The initial output of 5,000 tons annually has been increased to 120,000 tons; but even more significant has been the increase in the nitrogen content of the product from 16 to over 23 per cent. Except for the abortive attempt of the Nitrogen Products Co., using the process of J. E. Bucher and backed by Edward A. Arnold, of Arnold, Hoffman & Co., and the initial work of the Atmospheric Products Co. which at Niagara Falls, in 1902, attempted without commercial success to operate the process of C. S. Bradley and R. Lovejoy, nitrogen fixation is entirely a war, or rather post-war, development in the United States.

Gradual Disappearance of American Potash

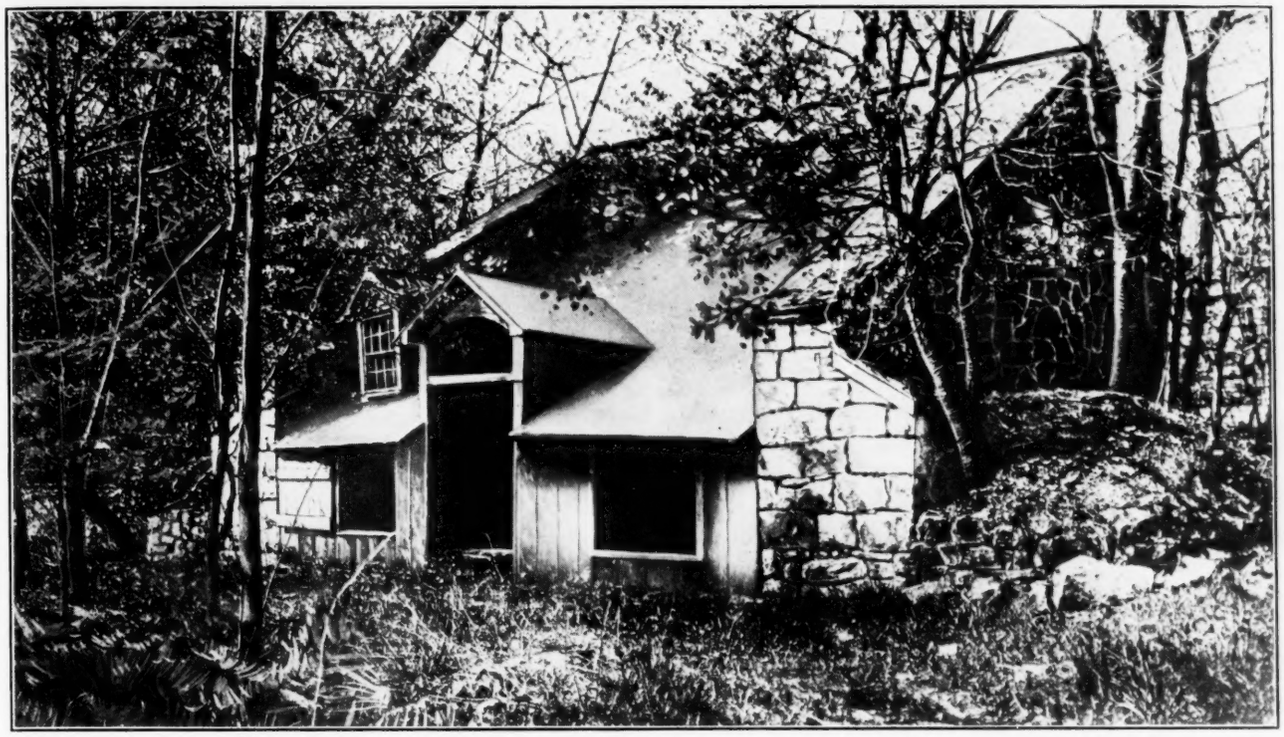
Wood furnished the raw material of our earliest chemical enterprises, pot-ashes and naval stores. It could hardly have been otherwise, for wood was the most abundant, easily worked, native, natural resource. The first employment of hardwood was naturally the simplest, i. e. the leaching of potash out of the ashes; and till 1860 when the Germans began exploiting natural potash salts from the famous Strassfurt mines, this primitive American operation shared the world markets with similar material from Russia. Again statistics tell the story of replacement. In the United States in 1850, 569 pot-ash producers enjoyed annual sales of $1,401,533: in 1900 the product of 67 producers sold for $178,180. In 1892 Wagner in his Chemical Technology estimated the world production of various potash sources as: Wood ashes from Russia, U. S. Canada, etc., 20,000 tons; beet ash from France, Belgium, Germany, 12,000 tons; mineral salts from Germany, 15,000 tons; miscellaneous, 1,000 tons. This total world output of 48,000 tons is interesting to compare with German exports of potash salts twenty years later when the average of the years 1910-14 was 965,129 tons annually to the United States alone. Our fertilizer and chemical uses of potash had so increased and so completely had the old native industry disappeared that the shutting off of this German supply by the War was one of the chemical crises of the period.

Growth of Wood Distillation

As the pot-ash industry dwindled, its cousin was growing. Charcoal making was practiced in the colonial times, yet no effort to recover the by-products was made until about 1833 by James Ward, that enterprising iron liquor manufacturer of western Massachusetts. Even this effort was little more than an experiment and the wood distillation industry originated with A. S. Saxon and J. A. Emmons in northern Pennsylvania. In 1874 George Edwards established the Burcey Chemical Co., at Binghampton, N. Y.; and in 1897 at the plant of the Creek Chemical Company at Straight, Pa., Matt Quinn charged the first still with the wood loaded in a movable steel car. In 1880, 17 plants produced $86,274 worth of methanol and the industry grew steadily till at the outbreak of the War 131 plants had an output of 9,702,431 gallons, valued at nearly three million dollars. Of this production 1,598,776 gallons, or approximately half the European consumption, were exported. Producing two chemical products (crude methanol and acetate of lime, both of which must undergo further treatment) in numerous small plants located of necessity close to the wood supply and far from the consuming markets, the wood chemical industry has always had peculiar difficulties in merchandising its wares.



William S. Gray (left) solved the individualistic marketing problems of the wood distillation industry; E. D. Kingsley (right) made the pioneer American effort to liquefy chlorine on a commercial scale at Germantown, Pa.; and F. S. Washburn (center) organized the American Cyanamid Co. in 1907 and began the first domestic production of cyanamid.



First powder mill of E. I. du Pont de Nemours & Co. built in 1802 at Wilmington, Delaware. This building has been reconditioned and maintained by the company as an historic landmark

The dangers and difficulties of individualistic marketing were solved by William S. Gray, who as agent, undertook the sale of the acetate; while the problem of refining the crude methanol was solved by the organization of the Wood Products Company, with a refinery in Buffalo, owned partly by the various independent wood distillers, although after the passage of the Denaturing Alcohol Law, which created a new market for methanol, the control of this operation passed to the United States Industrial Alcohol Company. Although some large producers, like the Cleveland Cliffs Iron Co. and a number of smaller "independents" have sold their products through their own organizations, these centralized agencies in the main controlled the market with the view of stabilizing supply and price. At the opening of the War, no chemical industry in America was apparently more firmly rooted than this old wood chemical industry: none, however, has gone through more revolutionary changes.

Chemical Trend of Fertilizer Industry

Early in the nineteenth century, by his demonstration that potash, phosfate, and nitrogen must continually be added to farmed land in order to maintain soil fertility, von Liebig laid the foundations of the fertilizer industry. Two of these vital plant foods we originally imported: the potash, as we have seen, from the Stassfurt mines and the nitrogen in the form of the natural salt, sodium nitrate, from Chili. The sole basic fertilizer material produced in adequate amounts prior to the war was phosfate, and it is upon an economic foundation of phosfate rock that our American fertilizer industry has grown up.

From almost its beginnings this industry has been becoming more and more chemical in its raw materials and its processes. Just as the original source of nitrogen, in commercial quantities, was guano (bird manure) from South America, so the original raw material for phosphorus was ground bone. By 1900 the guano deposits, chiefly from rocky islets off the west coast of South America where the sea birds have nested for ages, were exhausted; but before Chili nitrate had largely taken their place. The discovery about 1865 of the South Carolina phosfate rock deposits opened up a supply that till 1888 furnished all domestic requirements and nearly 90 per cent of European demands. In that year the richer deposits in Florida were discovered and by 1894 were producing more than 325,000 tons, more than the South Carolina output. By 1893 the Tennesse deposits which came into production in 1888, had also passed the South Carolina output, which had dwindled to less than 1,000,000 tons by 1912 and ceased entirely shortly after the war.

First Fertilizer Plant in 1853

These shiftings of the source of its phosfatic material did not, however, seriously affect the American fertilizer industry which had first been established in Baltimore by the experiments of Dr. P. S. Chappell, Professor Mapes and William Davison, who in 1850, began following the work of German disciples of von Liebig's. The first commercial plant was built by Dr. Chappell in 1853, followed by B. M. Rhodes in 1854 and a year later by John Kettlewell.

By 1856 American consumption of chemical fertilizers had reached a total of 20,000 tons, with 60,000 additional tons of guano. The development of the industry was characterized by the establishment of a host of small firms whose reckless competition intensified the very considerable marketing problems. Almost from the first the southern cotton and tobacco farmers proved to be the chief consumers of fertilizers. The consuming season was thus confined to a few short weeks and the consumption rendered dependent upon the prosperity of but two of the country's big, cash crops. Cut-throat competition forced the consolidations of a member of the fertilizer makers in four larger companies; but the sales situation continued to be upset by local "mixers" who purchase their raw materials and thus being relieved of heavy investment in phosfate mines and acidulating plants can operate within a restricted territory with a minimum of overhead. Consumption of fertilizers continued to increase, but although the gross sales of fertilizers reached the total of over 75 million dollars before the War, the business has often shown an unsatisfactory ratio of profits to investment.

Coal Tar Beginnings

The coal-tar branch of the American chemical industry began by disposing of a waste product from the growing operations of the gas industry. About 1850 the Warren family first engaged in the business of manufacturing various materials out of the by-product tar from gas works. Tar-paper and roofing pitch were then the main products, and it was not until the late eighties that in a very modest way benzol and tar acids were first recovered from coal gas operations. There was in fact, then, no chemical market for these coal-tar products, and even after the establishment of the first recovery type of coke oven at the Semet-Solvay plant, Syracuse, N. Y., there was but little incentive to break up the crude tar by fractional distillation. The turn of the century, however, saw a change. There was as yet no considerable demand from the dye industry for intermediates, but it was beginning to grow. The large consumption of both aniline oil and benzol in the rubber industry was yet to come with the demand for automobile tires. In the future, too, were the markets of artificial leather, lacquers, and high power explosives. The humble beginning was in new markets for benzol as paint and varnish remover and for the manufacture of rubber cements used in the canning industry. In 1900 the Semet-Solvay plant installed the first light oil recovery still. Sharp criticism of the industry which continued to coke coal in the wasteful beehive ovens and which marketed the 60-odd million gallons of coal-tar then available in the very crude forms of creosote oil, tar and pitch, ignores the plain economic fact that not until after the outbreak of the World War was there any other market. It would have been even more uneconomic for American producers to have invested in plant and labor to refine materials for which they had no customers.

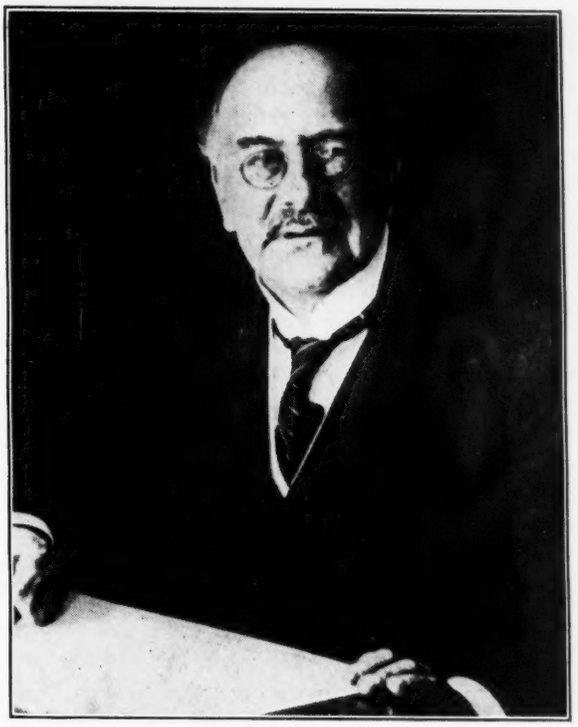
Throughout the history of the American chemical industry, this fundamental economic condition has always obtained. As raw materials for other industries, chemicals have of necessity waited upon an effective demand in other manufacturing processes; and as a consequence, the expansion of our chemical industry has been dependent upon the general state of manufacturing progress and activity.

Moreover, the establishment of the industry in this country was attended not only by the usual difficulties of limited technical experience and small consuming demand; but also by determined competition from the more experienced and better established industry abroad. The story of the unscrupulous methods by which the German dye manufacturers very thoroughly discouraged the establishment of an American dye industry has been often told; but this was by no means an isolated case. The manufacture of phosphorus—then an important raw material of the match industry—was undertaken at Mt. Holly, N. J. in 1870 by the firm of Rose & Lowell. When they opened their plant the selling price was $1.25 a pound. The next year it dropped to 70 cents. The little plant at Mt. Holly closed down. The next year the price went back to $1.20, and the plucky partners re-opened. They gave up the fight four years later after the price had been carried down to 50 cents a pound. The match business had passed into the virtual control of a single company and at the time it was testified that they "have contracted with an English company for their phosphorus supplies at a price considerably below that quoted in England and below the cost of production here". The English price was about 70 cents a pound, but this contract called for the delivery of the material in New York, with a 20 per cent *ad valorem* duty paid, for 60 cents.

Success of Bromine Industry

The bromine industry went through a parallel experience, but to a happier conclusion. Manufacturing was begun at Freeport, Pa., in 1845 by Dr. David Alter to supply the use in daguerreotype plates at the profitable price of from $6 to $8 a pound. When this photographic process was superseded, he suspended; but in 1866, a new use in medicine as a nerve sedative having been found, the Rosengartens sent C. W. Bodey to erect a plant at Tarentum, Pa. The supply of bittern proved inadequate, however, so the plant was moved to Pomeroy, Ohio, and was the first of the long series of bromine works in that section. Meanwhile the Germans had entered the market with bromine recovered as by-product from the Strassfurt salts, and the price dropped from $6 in 1866 to 28c in 1880. After choking off all effective American competition the Germans met ultimate defeat at the hands of the Dow Chemical Co. working the brine deposits of northern Michigan under the skillful and energetic direction of Herbert H. Dow.

Lord Melchett *on the* Goal of *our* Modern Chemical Industry*



The Chairman of the great British Chemical consolidation speaks on modern industrial tendencies, basing his remarks upon the developments in England for which, incidentally, he is largely responsible.

ONE of the tendencies of modern industry is a growing development of the worker becoming capitalist. This tendency is perhaps more marked on the other side of the Atlantic than it is in Europe. The number of workmen shareholders in America is very striking, and anyone who has studied the figures recently is more and more impressed with that fusion of interests, which is taking place to so considerable an extent. In spite of the relatively quiet time existing in American industry to-day, as far as industrial disputes are concerned, the working man, feeling a direct personal interest in the result of the year's working, is naturally not anxious to disturb the profit and loss account of the company. That is one of the important effects of this movement.

Workers as Shareholders

I am glad to say that, since Imperial Chemical Industries, Ltd. has been formed, we have had a growing number of staff and workmen in the shareholding scheme which we have introduced. This scheme is at present under revision to make it still more effective. There are some people who are afraid that if workmen become shareholders they will ultimately get complete control and upset the decisions of the board. Personally I have no fear in that direction. On the whole, my experience is that our workmen are sufficiently educated and reasonable to leave the direction of companies to those who have been trained and tested in that capacity.

Undoubtedly one of the main tendencies is the great interest taken in modern industrial problems. It is all on the line of the work we have been doing on the Melchett-Turner Conference. The old idea of the controversy between capital and labor is obsolete, and co-operation between all engaged in industry is the only salvation of industry. This is one of the principal features in the results of our considerations, as expressed in the various memoranda. We have taken a great step forward, and the other questions that must necessarily arise in the minds of those engaged in industry in its different capacities become matters of detail.

Efficiency Paramount

In all industry there is an intense necessity for the highest possible degree of efficiency that human effort can obtain. It is impossible for human effort to reach 100 per cent efficiency because we are none of us 100 per cent efficient, and the aggregate is no more efficient than the individual. But, as far as the human factor allows, we have to reach the highest possible standard. There is an uneasy feeling among the workers that the people who are running industry are themselves inefficient, and it is really that feeling which is causing a certain amount of the disquietude which exists to-day. Modern industry is not prepared for inefficiency. Efficiency is the key-note to industrial life and must be understood in order to launch out in every possible direction. Efficiency of management, salesmanship, market and finance—all are necessary. A much higher standard to-day is

**Abstracted from an address before the Industrial Co-Partnership Ass'n, London.*

required than when I first went into business, and the responsibility, anxiety and daily troubles of those who direct industries are little realized by many of those who think themselves much worse off because they have a less remunerative and lower position. But in reality the latter have a much happier life because they are free of this responsibility.

Large Units Necessary

Some people have the idea that the tendencies which are developing are modern; they are not. They have grown more rapidly in recent times because the vast increase in consumption has demanded increased output and manufacture on a scale unheard of and unthought of a generation ago, and also because a great deal has had to be done, not always by choice but by necessity. Production to-day is capable of infinite expansion in a very short time. All these factors lead naturally to a difficult position—a struggle to maintain a balance between consumption and production. These problems have been forced by circumstance very largely upon the industries of this country. Some people do not like to see these great amalgamations—well, there is a good deal to be said on that side. One thing, however, is quite clear to those who deal with these matters, that it is quite impossible for a relatively small unit to maintain its position in the world, against the powerful combinations of efficiency and expert management.

Profits can easily be divided when there are profits to divide, but our difficulty is to divide the losses. Surely our first duty is to see in what way we can re-establish prosperity. Copartnership and contentment are not easy to achieve when you are talking about longer hours and other obsolete conditions, but with renewed prosperity this becomes easy.

The Human Side of Industry

There is a tendency to-day to overrate the value of money rather than the value of life itself; people are rather apt to look at industry merely from the financial point of view and not from the human side. We do not wish to see our industries becoming dehumanized. I hope that the old family business spirit will never be lost. I have endeavoured to keep, as far as is humanly possible, in contact with the workers, by means of works committees and councils. To obtain the willing and loyal co-operation of those engaged in the daily work of the factory is of inestimable value; accountants do not know of it, and taxing authorities—thank heaven—can never tax it. I am sure that the genuineness which characterizes our people will enable us still to keep the old traditions under new methods. By that means we shall settle some of the most difficult problems by the harmonious co-operation of all concerned in industry.

Let us also face the terrible problem of hundreds and thousands of people who are unemployed. The problem of unemployment is not known in other countries to the same degree because in other countries agriculture can absorb its people. How can we rectify this position? The balance between industry and agriculture in Britain has been upset. We can do much to improve British agriculture; modern scientific methods can do much. Great Britain has the great "Agricultural Hinterland" of the Empire to balance her over-rapid industrial development. It is only when you take a wider purview—it is only when you begin to think, not in terms of Great Britain but of the Empire, that you realize that the Empire is the agricultural ground for Great Britain. It has room for great populations, and it is still practically uninhabited.

Mergers National in Scope

The fundamental issue must lie with the British Empire, in its fullest extent, and I am glad to think that recent indications show that more and more leading men of the Dominions, together with statesmen, politicians and industrialists are coming to this conclusion. The difficulties of such schemes I need hardly repeat, but they can be overcome by goodwill and the desire to sit down and handle them. I cannot see why we cannot have a merger of the Empire just as we have mergers in industry. A merger of the Empire ought to be an easier proposition than in many of our industries. This movement towards the organization of the British Empire as an economic unit is certainly one of the modern tendencies.

I have said that the tendencies in modern industry to-day are to amalgamate complexes of capital, national and international. The United States is itself a self-contained unit which had made such an arrangement. There is already apparent a desire among thinking people of Europe to see how they can arrive at something which will make their unit more capable of standing up against foreign competition. Great Britain will have to decide which road she is going to travel.

World's Rayon Plant Capacity Set at 417,750,000 Pounds

Rayon plant capacity of the world is set at 417,750,000 pounds by the "Silk & Rayon Directory," Manchester, England. The book shows that there are now 182 firms producing rayon, but it is noted that the above figure represents capacity and not actual production.

The directory gives the viscose production as 346,000,000 pounds, produced by 124 firms and comprising 82.8 per cent of the total. Acetate yarn is produced by 31 firms reaching a total of 35,000,000 pounds which is 8.4 per cent. It is claimed that there is 20,500,000 pounds of cuprammonium yarn, comprising 4.9 per cent produced by 18 firms and only 16,250,000 or 3.9 per cent produced by nine firms.

Of the total nitro-cellulose yarn produced it is noted that almost half is made in the United States.

Compagnie des Mines de Bethune, France, which has been producing about 3,000 litres of synthetic methyl alcohol per day for the past two years, is about to double this output, and is also erecting a new plant which will bring the total daily output of synthetic methyl alcohol to about 18,000 litres. Manufacture of formaldehyde is at the rate of 120 tons per month, and of ether at the rate of 1,000 litres a day.

Analyzing Chemical Mergers

The present trend toward acquisition is herein scrutinized in the light of the chemical industry's past history with regard to mergers.

By Willard L. Thorp

National Bureau of Economic Research

THE organization of industry may be described as taking place on three levels. On the first the unit is the plant and changes in it are called changes in the scale of production. But these individual plants are often joined together in larger organizations. The problems on this second level are problems of the scale of management. Finally there are the less tangible links which bind companies together such as stock ownership, interlocking directorates and the like. And this, the highest level in the structure, is the level of ownership.

Rapidly Changing Ownership

Concerning the first level, that of production, we have excellent material. These data were discussed in a previous article in CHEMICAL MARKETS by the author. In general, the great changes on this level have taken place and many industries have shown little advance since the war. Concerning the problems of the highest level, of ownership, we have very little information. But the second level is the one undergoing most rapid transformation at the present time. The existing plants are being bought and sold and traded about. It is here that our industrial structure is changing most at the present time.

Mergers are not a new phenomenon in industrial life. At the beginning of the century several hundred large combinations were formed within a period of two or three years. The failure of some of them through faulty promotion and the absence of economic justification coupled with increased vigor in the enforcement of the Sherman Anti-Trust Law were chiefly responsible for checking the movement. Since the war, merger activity has been revived. As yet no checks have appeared and the record of mergers continues to grow rapidly.

The early mergers were limited chiefly to what the Germans would call the "heavy" industries. The present movement is no respector of persons. Hospitals have merged. Department stores and hotels have swung into line. Motion picture theaters have been taken over. In the field of public utilities the number of firms acquired rose from 15 in 1920 to 1,029 in 1926. We are told that over 1,000 banks have merged in the last year.

Mergers in manufacturing were made the subject of a special investigation in connection with the report on *Recent Economic Changes* prepared by the National Bureau of Economic Research, Inc., for a special committee of the President's Conference on Unemployment. The study is probably not absolutely complete, but it included every merger which received public recognition in newspapers or trade journals during the years 1919 to 1928. This investigation showed that during the decade from 1919 to 1928, 7,249 concerns were merged or acquired. The year 1922 saw the lowest number with 376, while 1928 was the highest with 1,259. And 1929 promises to break all previous records.

There are styles in mergers as in most other things. In 1920, for example, the oil industry recorded twice as many mergers as in any other year, while in 1928 the textile industry completed three times as many as in any previous year.

Few Chemical Mergers in Past

The movement appears to be stronger in some industries than in others. The industries centering about the production of iron and steel have always been active in consolidation. Dividing these manufacturing mergers into broad industrial groups we find that the number of companies involved has been as follows: Iron and Steel, 1,364; Food Stuffs, 963; Nonferrous metals, 797; Oil, 765; Lumber and Paper, 510; Textiles, 505; Motor Vehicles and Parts, 367; Chemicals, 355; Coal, 296; Others, 1,337. As might have been anticipated by anyone watching the movement, iron and steel and foodstuff's lead in merger activity. This makes it clear that the chemical industry has not been a leader in the merger movement. This calls for explanation.

In the first place it must be noted that in the past the occasion for mergers has been the possibility of lower production costs by operation on a larger scale. These economies are usually most significant in the early stages of the manufacturing process. In the iron and steel industry, for example, consolidations appear most complete in pig iron and raw steel manufacturing. Concentration appeared not at all or appeared later in the manufacture of finished iron and steel products. In the early stages the product is less diversified and more standardized. The same tendency has been evident in the chemical industry. The manufacture of raw chemicals is almost entirely in the hands of large concerns. On the other hand there are hundreds of small independent concerns in the later stages such as the manufacture of paints and varnishes and of perfumes and cosmetics.

Chemical Companies Large Operators

When the present merger movement got under way in 1923 it found certain branches of the chemical industry already operating on a large scale. The number of corporations engaged in manufacturing chemicals which have reported to the Bureau of Internal Revenue net income in access of $100,000 in recent years is as follows: 1918, 428; 1920, 346; 1921, 203; 1922, 430; 1923, 376; 1924, 378; 1925, 479; 1926, 504. Approximately one-tenth of the largest income-tax reporters in the field of manufacturing are, and have been in the past, chemical companies.

To make certain that the point here made is correct, namely that a considerable number of chemical concerns were already large before the present merger movement, about fifty were studied to find out when they assumed their present form. Minor acquisitions since formation were disregarded. The results by decades are as follows: Prior to 1890, 5 per cent; 1890-1899, 15 per cent; 1900-1909, 30 per cent; 1910-1919, 35 per cent; 1920-1929, 15 per cent.

The above facts should make it clear that one reason for the absence of a large number of important mergers in this field is the previous existence of many large concerns.

Rapid Growth of Industry

A second reason for the low ranking of chemical industry in the merger movement lies in its rapid growth in recent years. Mergers are apt to be defensive actions. When the various individuals in an industry are prospering and their output and sales are growing steadily they see no reason for mergers. The fact can be assumed that the chemical industry has made rapid advances in recent years. In those branches where difficulties have arisen, as for example in the fertilizer industry, the merger movement has been much more active. At the present time, mergers are particularly active in the textile and automotive parts industries. Both have been over-expanded in the past. By merging, they hope to regain a sound economic basis. Obviously, this situation has not been reached in the chemical industries. The rapid expansion makes such realignment seem unnecessary.

Mergers for Lower Transportation Costs

But the story is not complete at this point. During the last three or four years there has been a decided tendency for the leading chemical companies to acquire smaller independent enterprises. During the decade 1919 to 1928 approximately 160 such enterprises have been purchased. One quarter of those were in the year 1928. This is a significant development and indicates that there are certain conditions under which mergers do appear attractive to those in the industry. Three of them can be suggested. The first cause arises out of transportation costs. While there are certain advantages to be gained by producing on a large scale in a single plant the element of transportation creates a decided disadvantage in some cases when compared with producing on a smaller scale in several plants distributed throughout the country. This is an extremely important element, for example, in the paint and varnish industry. It can be readily seen if one takes a hypothetical example. Suppose a concern has its plant on the Atlantic seaboard and ships a considerable part of its product to the Mid-West. It might gain by acquiring or merging with a company whose plant was in the Mid-West. The gain would be doubled if the Western plant had been in the habit of shipping part of its product to the Atlantic seaboard. Not only is the transportation factor an important element of this desire for geographical diversification, but in these days of hand-to-mouth buying the time element may also be important. Manufacturers must be able to meet demands of their customers rapidly. In some cases however this need has been met by developing central distributing agencies or a warehouse system.

Mergers for Diversification

A second element in the present trend towards acquisition is a recognition of the advantages of diversified products. The science of chemistry is advancing so rapidly that concerns whose success is based upon a single product have a rather precarious existence. The wood distillation industry is a case at point. Furthermore, the continual discovery of new uses for by-products cannot help but lead to new alignments of industry.

Finally the importance of marketing must be noted. It is probable that despite promoter's statements the reason for most present day mergers lies in the field of marketing. The extent to which economies in production arise from mergers may be open to question but there is no doubt that large concerns have certain advantages in distributing their products. A study made by the author of nine industries shows that in eight of them the large concerns are making greater gains in sales than the medium-sized concerns. The small companies however appear to be holding their own. The large company can distribute on a

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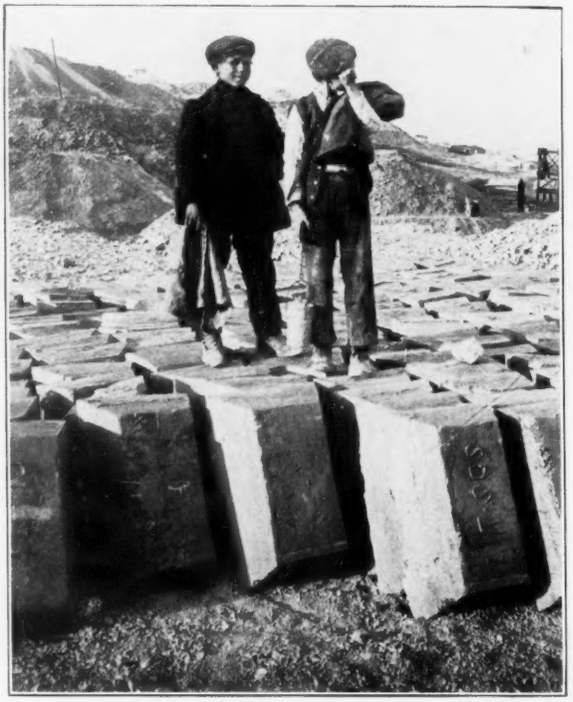
CHEMICAL

Photographic Record

The mystery of the market for ammonium sulfate in the Orient has at last been cleared up. Here is the last step in the distribution of our exports of this chemical to the Far East—a Korean street hawker peddling sulfate in package quantities from a position of advantage on Main St.

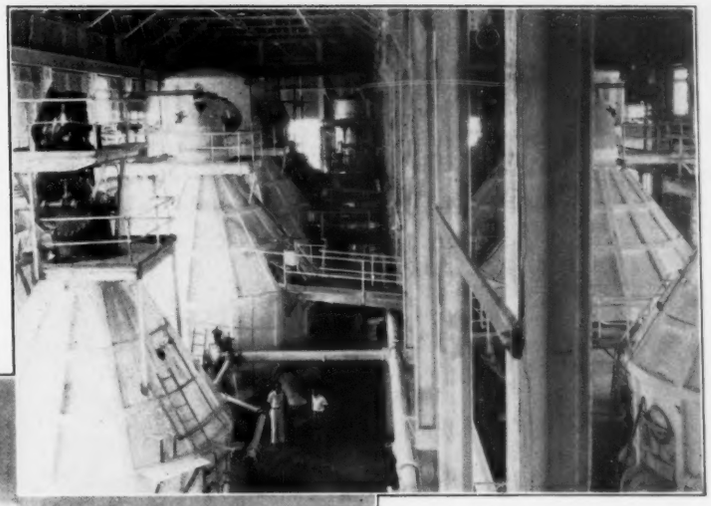


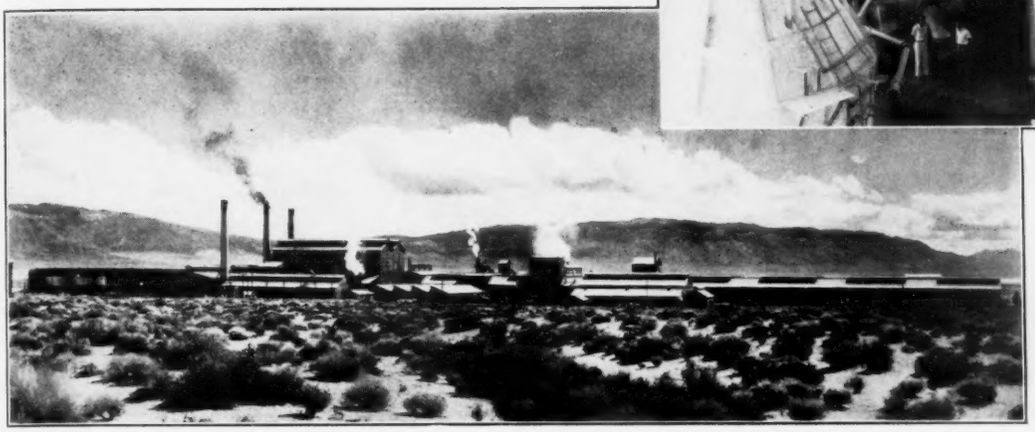
A dead volcano gives Sicily a sulfur industry. These sulfur blocks suffer by comparison in size with those produced by the American companies which run about 150,000 tons per unit

Dr. Herbert H. Dow receives the Perkin Medal for 1930. A view of the distinguished gathering at Rumford Hall, the Chemists' Club, New York, on January 10, when Dr. Dow (insert upper left), president, Dow Chemical Co., was highly honored with this premier award for accomplishment in industrial chemistry

NEWS REEL

of Chemical Activities





A new factor in the potash and borax markets. Two views of the operations of American Potash & Chemical Corp. at Searles Lake, California. To the left is a general view of the plant in the Great American Desert showing from left to right cooling towers, boiler house, evaporator house, crystallizing house and storage warehouse. Above is a view of the interior of the evaporator house whose multiple effect evaporators handle one million gallons of water daily from the brine

The dean of the wood distillation industry, William S. Gray, is shown seated at his desk reading the flood of congratulatory messages on the occasion of the fiftieth anniversary of the establishment of the William S. Gray & Co. J. V. N. Dorr (left) president. The Dorr Co., is recipient of the James Douglas Medal of the American Institute of Mining and Metallurgical Engineers for his contributions to hydro-metallurgical practice

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B. T. Babbitt, Inc.
Ceramic Color & Chemical Co.
Eastman Kodak Company
E. I. DuPont de Nemours & Co.
E. R. Squibb & Sons
General Chemical Company
Goodyear Tire & Rubber Co.
Heller & Merz Co.
Maxwell House Products Co.
National Adhesives Corp.
National Aniline & Chemical Co., Inc.
National Carbon Company
Parke, Davis & Company
Pure Oil Company
Standard Oil Co. of New York
The Carborundum Co.
The General Foods Company
The Roessler & Hasslacher Chemical Co.
United States Bronze Powder Works, Inc.
United States Rubber Co.
Vanadium Corp. of America

Carpenter Drums conform to I. C. C. regulations. They are widely used for such products as—chemicals, abrasives, dyes, soap powders, insecticides, coffee, cocoa, spices, foods, drugs, greases, plastic materials.

Sizes 1 to 51 gallons—10 to 375 pounds

THE well dressed man—the well dressed product. Rightly or wrongly, we are all influenced by appearance—influenced tremendously.

Your salesmen do not call in overalls. Why not dress up your product, too.

Carpenter Drums are appreciated by the sales and advertising departments, naturally. They are modern, trim, efficient looking containers—with excellent display opportunities.

More than that, Carpenter Drums maintain your products' uniformity through transportation, storage and use.

Strong, tight and easy to open and reclose. No sifting or waste during use. Their appearance insures your prestige. Their efficiency insures your reputation. Customers judge your product when they use it—not when you make it.

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137-147 41st St.

national scale using national advertising and dealing with chains of distributors. The small company is usually based on a particular situation and on the force of a personal contact. The middle sized concern falls between these two groups. Many mergers are the result of the attempt of middle-sized companies to sell on a national scale. This condition of course is not significant to the manufacturer of raw chemicals but it is very important in concerns producing finished products, such as medicine, perfume, and paint industry. The merger offers a method of eliminating cut-throat competition within the industry, and of presenting a solid front to other industries in the present "battle of advertisements." It is not surprising that many concerns are seeking their salvation by the merger route.

Justification—Consumer Benefits

In this country the development of large combinations has always been looked at rather askance. The present merger movement however has proceded with very little interference from the government and virtually no opposition. This condition will continue however only so long as the mergers formed have an economic justification. In the last analysis the only economic justification is benefit to the consumers. If mergers in the chemical industry will tend to accomplish this condition then it is to be hoped that the movement will continue rapidly. Otherwise it cannot do so.

German Chemical Exports Up

German chemical exports for the first nine months of 1929 totaled over 1,000,000,000 marks, a new high, although volume was 4,229,000 metric tons, slightly under that of 4,270,000 tons for like period last year, according to advices to Department of Commerce.

Imports were one-third of the 1929 tonnage. Notable increases in export values, compared with a year previous, are a 22,000,000 mark gain in exports of heavy chemicals; 4,000,000 marks in paints, varnishes, etc.; and 11,000,000 marks in ethers and esters, alcohols, and miscellaneous chemicals. Increasing chemical export values by Germany are significant, in view of the currently reported strain and saturation of internal markets.

The excess exports of chemicals in the comparative nine-month periods of the last six years are shown in the following table:

German chemical export balances during first nine months of 1924-1929:

Year	*Imports Marks**	*Exports Marks**	*Excess exports Marks**
1924	100,108,000	395,652,000	295,544,000
1925	167,954,000	645,296,000	477,342,000
1926†	141,869,000	750,489,000	608,620,000
1927	200,328,000	866,619,000	666,291,000
1928	238,816,000	991,806,000	752,990,000
1929	237,694,000	1,040,356,000	802,662,000

*Gold mark—$0.2382.
†From 1926 onward, export figures include reparations deliveries in kind.

German official chemical trade classifications do not include turpentine, rosin, phosphate rock, and benzol, and these items therefore, are not included in the totals previously given.

Carba Dry Ice (Australia) Ltd., is incorporated in Victoria with capital of £100,000.

The Industry's Bookshelf

A History of Financial Speculation, by Ralph Hale Mottram, 317 pages, Little Brown & Co., Boston, Mass. $4.00 net.

A survey of the birth and growth of one of the most curious of human faculties—that which deals with the fluctuating financial values of the unknown future.

Two Thousand Years of Science, by R. J. Harvey-Gibson, 362 pages, $4.00, The MacMillan Co., New York.

The story of the growth of science from the present day down to the present time.

Raw Materials of Industrialism, by Hugh B. Killough, Ph. D., and Lucy Killough, Ph. D., 407 pages, Thomas Y. Crowell Company, New York, $3.75 net.

Description of economic significance of industrial raw materials —food supply, textile fibers, forest products, Metals and sulfur, fuels and power, and minor commodities.

The Chemistry of Leather Manufacture, by John Arthur Wilson, D. Sc., Second Edition, Volume 2, The Chemical Catalog Company, New York.

This item in the Monograph Series of the American Chemical Society, making a total of 1,181 pages for the two volumes, is devoted mainly to descriptions of processes and theories of tanning by vegetable and mineral methods but also includes discussions of other processing of leather materials.

Diatomaceous Earth, by Dr. Robert Calvert, $5.00, 251 pages, Chemical Catalog Co. Inc., New York, N. Y.

A description of the present-day diatomaceous earth industry, with an indication of future progress in the light of past experiences, by the chief chemist of Van Schaack Bros., Chemical Works.

Industrial Chemistry, by Emil R. Riegel, $9.00 net, 649 pages, Chemical Catalogue Co., Inc.

A picture, in a single volume, of the numerous commercial activities which make up industrial chemistry.

Universal Electromagnetic Hypothesis, by Alpheus J. Roberts, 53 pages, Christopher Publishing House, Boston.

A doctrine on the physical properties of the universe, illustrating the fundamental technique on every subject within the scope of science.

Auditing, by Robert H. Montgomery and Willard J. Graham, $2.00, 218 pages, American Technical Society, Chicago.

An outline of the general principles underlying any audit and the essentials of procedure which must become familiar to any student of the subject.

Industrial Microscopy, by L. C. Lindsley, Ph. D., 286 pages, The William Byrd Press, Inc., Richmond, Virginia.

An extremely useful compilation of crystal data and methods for use in microscopy.

The Pacific Area, by George H. Blakeslee, 224 pages, World Peace Foundation Pamphlets, Vol. XII, No. 3, Boston, $2.00 net.

International relations and official international co-operation in the Far East, described in considerable detail.

Asia, an Economic and Regional Geography, by L. Dudley Stamp, D. Sc., B. A., M. I. P. T., 616 pages, E. P. Dutton and Company, Inc., New York, $8.00 net.

Comprehensive study of the Asiatic continent by countries.

When a Man Builds a House . . .

Does he make separate deals for the plumbing, lighting, painting, and other divisional jobs that go to make up the whole? Not usually. He saves money and mental worry, by turning the job over to one contractor who accepts the entire responsibility.

The purchaser of industrial equipment, when planning additions or revisions to his plant, can make similar savings by dealing through one manufacturer. Whenever the operation or process involves wet-material handling, the Dorr Company is in a position to supply all necessary equipment and accessories. Complete equipment has recently been supplied for an alum plant, a causticizing system, a sewage treatment plant, a phosphoric acid plant and continuous carbonation systems in beet sugar plants.

Call on the Dorr Company whenever you have a problem involving agitation and mixing, thickening and dewatering, classification, washing, clarification, filtration, etc. Let *us* undertake the working out of your whole problem.

Bulletin No. 7071 describes Dorr Equipment and Services. Write to our nearest office for a copy.

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Pty. Ltd.
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Andrews & George
Tokio

NICKEL

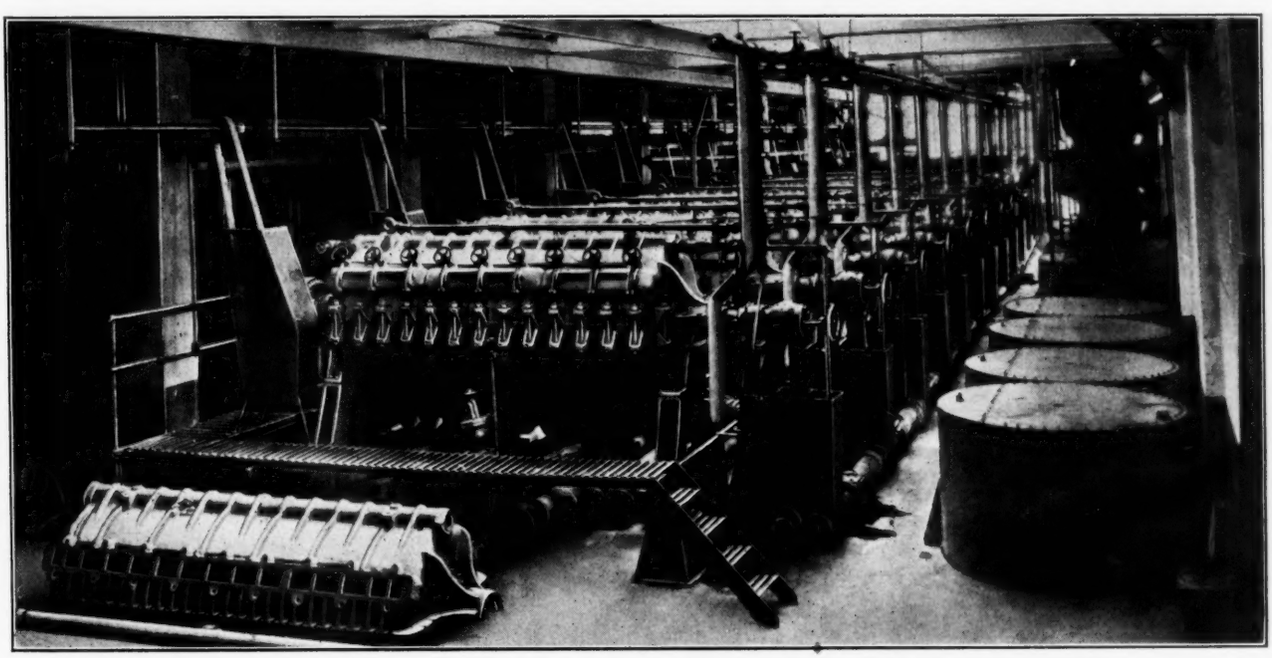
and Nickel Alloys Find New Uses in Chemical Plant Equipment

By E. A. Turner
International Nickel Company

THOUGH the use of nickel in alloy form has been known to the chemist, the engineer, and the metallurgist for centuries—as, for instance, the alloy pakfong of the early Chinese—it is only within comparatively recent years that it has been applied to industry to any extensive degree.

For a long time, of course, the chief use of the metal was in armament alloys, but since the war it has been applied more and more to commercial purposes and to-day in both the pure form and in alloys it is an important factor in industrial equipment.

In the chemical plant, where corrosive action is encountered at almost every hand, nickel has been found to have many advantages. In the pure, solid form the metal is not an active element chemically and is not attacked at ordinary temperatures by air, fresh or sea water, or by other similar corrosive agents. Even such organic acids as acetic, oxalic, tartaric, and



Rotary filters using "Monel Metal" filter cloth, have effected many economics in sugar refining, performing the work which previously required twenty-one filters of the canvas type

WHATEVER YOU MIX....

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WILL DO THE WORK WITH MAXIMUM EFFICIENCY

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When writing be sure to specify type of your electric current supply.

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Manufacturers of "*Hy-Speed*" Electric Mixers and Mixing Tanks . . .
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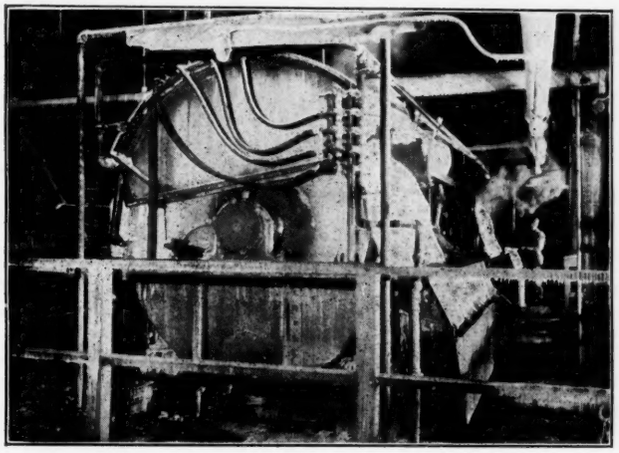
47 West 63rd Street — New York City

citric acids attack it appreciably only after long periods of contact. It is highly resistant also to sulfuric and hydrochloric acids and it is for all practical purposes immune to the action of alkalis in the fused or aqueous state.

Though there are numerous nickel alloys which are used in the chemical and allied industries, the metal in its pure form and in "Monel Metal"—an alloy containing approximately two-thirds nickel and one-third copper—provide the most important and most numerous applications. Each presents many properties in common with the other though a small degree of variation gives each some advantages for specific



Filter equipped with "Monel Metal" installed in a California potash and chemical plant

purposes, such as in the dairy industry where it has been found desirable in most cases to use pure nickel for all equipment coming into actual contact with milk and milk products.

The primary value of both nickel and nickel alloys to the chemical plant, of course, lies in their high resistance to corrosion, great strength, ductility, and their smooth, hard surfaces which are proof against abrasion and also are easily cleaned, thus helping to prevent contamination of product. These are essential qualities for such applications as the preparation and handling of food stuffs and pharmaceutical supplies.

Though the development of "Monel Metal" as a commercial product dates back less than a quarter of a century, it has become, with pure nickel, widely used throughout the chemical industry and reflects a steady increase in application as this industry. In common with others in all fields, it shares more and more in that general improvement and added efficiency which competition and mounting costs have brought to all American commercial enterprises within recent years. The call everywhere has been for materials and equipment that will withstand the strain of increased production and also permit a better product and guarantee more effective operation without loss through failure, break down, and the need for replacement or repair.

This is important since it is the difference between continued operation and the loss of production through interruption which frequently spells the difference between profit and loss in those plants and industries where the margin of profit is small.

It is perhaps significant that as competition increases and prices drop the use of nickel and its alloys in equipment shows an increase in a large number of plants and for a widely diversified number of purposes. Several among many interesting applications of the metal may be given as illustrations of some of the newer uses. One example is in filter cloth, which was first introduced some years ago and has since seen a rapid development. Substitution of filters using "Monel Metal" mesh in place of an older type of canvas filter has been found to save $67,527 in a single year for a large sugar refining company whose plant produces three million pounds of the commodity in a day. In this plant twelve of the new type filters replaced twenty-one of the older model and cut filtering costs from $.188 to $.106 for each thousand pounds of sugar produced. On the basis of performance to date a five-year life is indicated for the cloth despite the corrosive action of the acetic acid encountered in this process.

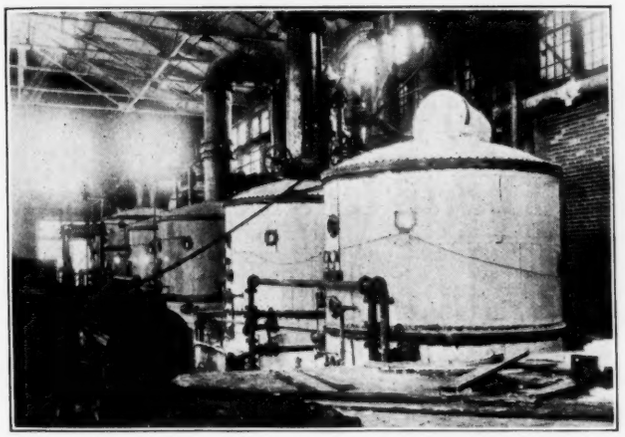
Filtering Pulp Containing Caustic

A further experience in connection with this filter cloth has been reported by the superintendent of a well-known chemical plant. Their problem consisted in the filtering of a pulp containing approximately 350 grams of free caustic soda per liter. A set of eighteen "Monel Metal" covered screens replaced cloth bags on their Sweetland press, since the cloth, as the filtration went on, had a tendency to become a poor filter medium. After nine months' use these screens apparently showed no corrosion or wear and were decidedly superior to the cloth formerly used. The filtering time, using cloth bags, was about two hours for a cake 1½" thick. With the nickel screens now in use a 2½" cake is obtained in a filtering time of 1½ hours. The thicker cake on the new screens takes 15 to 20 minutes longer to dry. Only eighteen frames are now used with these screens instead of seventy-two frames with the cloth. This gives greater space between the filtering frames and facilitates unloading.

A reduction in costs of 73 per cent has been achieved in another chemical plant where nickel alloy filters were installed in place of those of metal more readily assailable by acids and alkali and less resistant to abrasion in leaning. In this plant a caustic solution having a temperature of 250 degrees, Fahrenheit, and a specific gravity of 1.4 was filtered through the nickel mesh. During this process cyrstals of sodium sulfite and some iron sludge are removed. The average run for one tank is about four hours, with an average of 1,000 gallons of liquid passing through the filter in that period. The cloth is cleaned every day by scraping and then passing through a strong stream of

water. It was found that the scraping process was almost as destructive to the metal cloth previously used as was corrosion. In this service the average life of the "Monel" filter cloth has been six months, with operation six days a week. Before replacement with this cloth the filtering material previously used failed usually in about a month. On three filters this saving has made a difference in costs of $1,494 a year.

In the same plant considerable difficulty was encountered with valves on blow cases containing an extremely corrosive agent—chlorsulfonic acid. To force the acid out of the case air is pumped in. From



Evaporators for caustic soda use pure nickel seamless tubing. Many chemical plants have standardized on the use of this material because it withstands the severely corrosive action encountered and at the same time improves product

time to time it is found desirable to release the pressure and for that purpose the air line is tapped with a short three-quarters of an inch pipe fitted with a needle valve. The average life of these valves when made of cast iron was about two weeks. Valves of "Monel Metal" were substituted and since have given an average service of five months.

A further indication of the diversified purposes to which zinc alloys may be applied is shown in the manufacture of paper. Operations in this industry, as in all industries, of course were affected by local conditions. In the case of one mill the water used in the process of manufacturing was taken from a nearby river. It was rather hard and contained a quantity of clay and other solids, together with dissolved salts which added unusual corrosive properties that were increased in the summer when the river temperature frequently rose to 100 degrees Fahrenheit. A further problem was added by solid impurities in the rag stock used for making bond paper. These caused an erosive action on the knives or fillings for the Jordan engines, in the selection of metal for which, a great deal of difficulty was encountered. Under the stress of both erosive and corrosive action fillings, or blades of steel on the machines were down unevenly and replacement was necessary in from three to six months. Even more serious was the effect on the paper because the uneven blades caused an unevenness in the space between plug and shell and prevented a uniform refinement of the stock. Furthermore the paper was at times so discolored by rust that it did not pass the inspection standards of the mill.

After costly experiments with several base metals and alloys, bronze fillings were tried. These proved more satisfactory though it was necessary to file the knife edges twice a year because they developed a tendency to burr. Each filling required about 15 hours' labor. Chipping about twice a year also was required. With such attention and repairs the bronze fillings lasted for about three years.

A test was made of cold rolled "Monel Metal" fillings on one machine. Results being satisfactory they were installed on a second machine a year later and on a third, three years later. These three installations have just ended an average period of service of almost seven years, indicating a life of at least that period for each "Monel Metal" knife in service on all machines under conditions obtaining at this particular mill. A good bearing is given the knives by running sand and water through the machine for about three hours twice a year. Whatever wear shown is uniform and can be offset by slight adjustments. Above all the use of these fillings has eliminated discoloration rust entirely. A check up on costs and maintenance and repair bills on five machines reveals a saving of 78 per cent over steel and 59.9 per cent over bronze.

Copper vs. Nickel Kettles

At a certain varnish plant the kettles in which the linseed oil was boiled or "bodied" were constructed of copper. Oil bodied in these kettles were found to have a higher acid number than is desired because the copper was insufficiently resistant to the free acids of the oil. This caused the formation of soluble copper soaps which in turn resulted in a darkening of the oil and tended to cloud the varnish. A "Monel Metal" kettle exhibited at a New York Chemical Exhibition has achieved a continuous service record of over 8,000 hours and is apparently good for many more hours' service before rebottoming will be necessary. The average life of copper kettles under similar conditions has been found to be about 1,100 hours. On the basis of this performance and on the record to date of fifteen 175-gallon kettles installed by one manufacturer, it was assumed for the purpose of survey that the durability ratio of "Monel" to copper is 7 to 1. The cost of the former is only 40 per cent over the latter.

Copper kettles would require rebottoming at a cost of $60.00 each after 550 heats—two years under the schedule maintained at the plant in question. "Monel Metal" bottoms, conservatively expected to withstand 4,000 heats under conditions met in this plant, will bere placed but once during a 3 year period. Including depreciation, average interest and rebot-

275 heats per year, is $20.90 per kettle. The total saving over the nominal life of 30 years—$627 per kettle—is more than ten times the additional cost of "Monel Metal" over copper. In all fairness it should be stated that the radiant heat system of combination is in use at this particular plant.

Chemists are familiar with the use of pure nickel for laboratory apparatus for alkaline fusions. The same properties which make nickel valuable for this work have been responsible for its application for the construction of evaporators for the concentration of caustic soda. The demand on the part of some of the newer chemical industries for purer caustic soda has brought about the standardization of pure nickel for this application. Pure nickel together with improved evaporator design has made possible the concentration of caustic soda of a high degree of purity to strengths as high as 75 per centand at the same time eliminating the use of caustic pots.

Related to the production of caustic soda is the production of chlorine and it is of interest to note that "Monel Metal" stems are specified for the Chlorine Institute Standard Valve for 100-105 and 150-pound containers.

Obviously the many industrial uses to which both pure nickel and "Monel Metal" are being applied cannot be traced here. A recent survey revealed that equipment made of these materials was employed in the handling of more than two hundred different chemicals. In each a corrosion problem is encountered, though in a number the need for additional properties beside corrosion resistance governed the selection of the metal. The greater strength of "Monel Metal" as compared with most non-corrosive metals was also a factor. This was particularly true where high temperatures were involved, "Monel Metal" being especially distinguished by its ability to retain its strength in great heat.

It is this combination of strength and corrosion resistance which is leading to a constantly increasing use of "Monel Metal" in the pickling of metals. The experiences of many manufacturers have indicated that it is the most satisfactory material yet developed for the construction of pickling equipment for service in hot sulfuric acid and other pickling liquors.

Public Service Commission approves new freight rates of the New York Central (East) on benzol, in metal cans in boxes, in bulk, barrels of tank cars, carload, minimum weight in packages 30,000 pounds, in tank cars, subject to Rule 35, from Solvay and Syracuse to Johnstown (on Fonday, Johnstown & Gloversville), 23.5c, a reduction of 3c per cwt, and effective January 26, 1930.

Of the Delaware & Hudson Railroad on binder (lignin liquor), in barrels, carload, minimum weight 36,000 pounds, and in tank cars, carload, from Ausable Forks and Corinth to Elmira (on Lehigh Valley), 25c per cwt. Reduction from Ausable Forks 5.5c and from Corinth, 3.5c per cwt. Effective January 25, 1930.

Of the New York Central (East) on soda (silicate of), carload, minimum weight when in barrels or iron drums, 40,000 pounds, when in bags or in bulk, 50,000 pounds, and when in metal cans in barrels, boxes or crates, 36,000 pounds, from Gardenville to Akron (on West Shore), 8c, reduction 5c per cwt. Effective January 28, 1930.

New Plant Construction

Sherwin-Williams Co. plans construction of addition to plant at Bound Brook, N. J., to be given over to manufacture of insecticides. It will be one-story and cost about $30,000 with equipment. Plans are also progressing for addition to lithopone plant at Coffeyville, Kan., operated in name of Ozark Smelting & Mining Co., a subsidiary, consisting of new buildings and equipment to cost about $250,000.

Mount Lime & Chemical Corp., Lynchburg, Va., plans construction of a lime and dry ice plant near the Natural Bridge of Virginia. W. D. Mount, long connected with the Saltville plant, Mathieson Alkali Works, heads the company.

Davison Chemical Co. plans building expansion program at properties of its subsidiary, Southern Phosphate Corp., Bartow, Fla., consisting of new buildings and equipment to cost over $400,000.

Hiram Walker-Gooderham and Worts, Ltd., plans erection of plant for manufacture of carbon dioxide gas and ice in Toronto, Canada.

Lautaro Nitrate Co., Ltd., plans construction of new nitrate plant in Chile with annual capacity of 540,000 metric tons per year.

Texas Chemical Co., Houston, plans to expand plant to increase output of sulfuric acid and bone black. Work will include new units and equipment to cost over $450,000.

Clayco Co., Charleston, W. Va., recently acquired by Carbide & Carbon Chemical Corp., lets contract for an addition to its plant for the manufacture of propane.

Monsanto Chemical Works files plans for one-story factory addition to cost over $35,000 including equipment.

Liquid Carbonic Corp. plans erection of new plant at Los Angeles, largely for the use of Dry Ice Corp.

New Incorporations

The Chromium and Aluminum Corp., Wilmington, Del., general mining—Colonial Charter Company, $12,500,000.

Electro Refining Co., Wilmington, Del., patents—Corp. Trust Co. of America, $5,000,000.

Gem Bronze Powder Co., chemicals—P. N. Janovio, 291 Broadway, $10,000.

Rose International Chemical Co., Inc., Dover, Del., petroleum oil, gas—U. S. Corp. Co., 2,000 shs com.

The Cadmium Corp., Newark, chemists—Koehler & Augenblick, Newark, $100,000.

Isaac Levinson, chemicals—A. L. Sainer, 202 West 40th st., $20,000.

Olajen, drugs—M. W. Monheimer, 521 Fifth Avenue, $10,000.

Fratello Chemical Co.—H. J. Griston, 1,501 Broadway, $6,000.

Chemical Chamois Co.—M. Kohn, 103 East 125th st., $20,000.

American Cotton Cooperative Association, to aid in carrying out the objects of the act of Congress known as agricultural marketing act, to sell and distribute cotton and manufacture cotton seed products—Capital stock, $30,000,000, of 30,000 shares, per value of $100 each.

Diatomite Products Corp., Wilmington, Del., manufacture Diatomite from diatomaceous earth—Edwin P. Simkin, Wilmington, Del., 150,000 shs com.

Imperial Properties Corp., Wilmington, Del., deposits of daitomaceous earth—Henry R. Isaacs, Wilmington, Del., 2,000 shs com.

Chemo-Therapic Institute, Newark, chemists—Peter A. Sena, Newark, $125,000.

General American Pfaudler Corp., Wilmington, Del., refrigerator tank cars—Corporation Trust Company of America, $2,000, 5,000 shs com.

Bio-Chemical Products Co., Wilmington, Del., compounds for live stock, poultry—Delaware Registration Trust Company, $25,000.

W. A. Rigney Company, Ltd., Montreal, Que., $10,000 chemicals—John E. Grivell, Helen Peers, Audrey M. Martin.

Canadian Reed Fibre, Ltd., Montreal, $200,000 and 2,000 no par shares, textiles—Gordon W. MacDougall, Gregor Barclay, John B. Taylor.

Radium Soaps, Ltd., Walkerville, Ont., $70,000 and 700 no par shares—Felix Bezaire, Donald Macdonald, Leo D. Bezaire.

Shirleys (Neograph) Canada, Ltd., Toronto, Ont., $100,000, chemicals,—Norman S. Robertson, Harold L. Steele, William F. Woodliffe.

Salutas Company, Ltd., Montreal, Que., $14,000 drugs—Ernest C. Werry, John T. Smith, Wilfred W. Werry.

SHIPPING GASES

Modern Developments In Transportation of Gases

By Victor Willoughby*

General Mechanical Engineer, American Car & Foundry Co.

A CONSIDERABLE percentage of the tank cars in service to-day, especially of the older designs built prior to 1917, are those used in the transportation of commodities which do not generate an appreciable vapor pressure within the temperature limits met in transportation. These types of tanks are also for commodities for which the flash point does not exceed 80 degrees Fahr.

There are a large number of commodities which are not within the category of explosives or dangerous articles, as defined and regulated by the I. C. C. These commodities may be transported in tanks, which do not meet all the I. C. C. requirements; however, these cars must be up to the standards required by the A. R. A. for cars acceptable in Interchange.

The I. C. C. specifications cover only such features of designs and construction as are peculiar to tank car tanks, or appurtenances. Other features of tank cars are covered by the Federal Government Safety Appliance Rules and the A. R. A. requirements for cars acceptable in Interchange.

The I. C. C. Specification 103 is the base specification. It covers a noninsulated, riveted joint type tank of open hearth steel and is primarily for use on a car for the transportation of petroleum products. This tank is designed with a minimum bursting pressure of at least 300 lb. per square inch, based on the lowest ultimate strength of the material used in the construction of the tank and the efficiency of the seam or attachment. This tank has a test pressure of 60 lb. per square inch. When used for the transportation of ladings which develop a vapor pressure, due to increased temperature, this tank is provided with one or more safety valves having a nominal popping pressure of 25 lb. per square inch. This safety valve must be tight against vapor leakage up to 20 lb. per square inch.

Where this tank is used for the transportation of corrosive liquids, inflammable solids, etc., the safety valve may be omitted but the tank must be equipped with a vent provided with a frangible disc which will rupture at a pressure not higher than 30 lb. per square inch. The specifications also require that the total discharge capacity of the safety valves, when used, must be such as to prevent the possible building up of pressure in the tank in excess of 45 lb. per square

*Abstracted from a paper presented at the annual meeting of the Compressed Gas Manufacturers' Association.

The picture heading the page represents one of the outstanding tank car developments of the past year—an all-aluminum car for transporting acetic acid, acetic anhydride and formaldehyde.

inch. You will note that this 45 lb. is 75 per cent of the test pressure of this tank.

The regulations permit the transportation in the I. C. C. 103 tank of commodities which may generate a vapor pressure due to increased temperature, up to that of 25 lb. absolute at 100 degrees Fahr. during the months of March to October inclusive; or 33 lb. absolute during the months of November to February inclusive. It should be noted that at this higher pressure, namely: 33 lb. absolute or about 18 lb. gauge, that even at 100 degrees Fahr. temperature of lading, the tank when properly equipped with safety valve or safety vent will permit no escape of vapor.

Open Hearth Steel Tank

There are various modifications of the 103 specification to provide suitable designs for special commodities. I. C. C. Specification 103A is such a modification for the transportation of corrosive liquids for which an open hearth steel tank is suitable. Bottom discharge outlets are prohibited, altho a washout chamber in the bottom of the tank may be applied. Safety valves are prohibited but a safety vent may be applied. Extreme care is required in the caulking of this tank in that the inside edges of the seams as well as the rivets on the inside of the tank must be caulked. The requirements for the dome fittings are those peculiar to corrosive liquid transportation.

I. C. C. Specification 103B is another modification, being primarily for the transportation of corrosive liquids which are highly corrosive when in contact with steel. This tank is rubber lined where all the surfaces that come in contact with the lading, that is, inside of the tank, loading and discharge pipes and dome appurtenances, are rubber lined. This again is a non-insulated tank. I. C. C. Specification 103C is another modification in which the entire tank itself is made of material which is non-corrosive with the lading for which the car is designed to transport.

Lined Tanks

Other modifications of this type of tank, i.e. the I. C. C. 103 desirable for special ladings, include the lined tank. These tanks may be lined with sheets of a material non-corrosive with the lading, such as lead, aluminum, nickel, chrome iron, etc. mechanically secured to the inside of the tank. Tanks have also been lined where the metal lining has been applied directly to the tank shell in the form of a plating, such as a lead lining applied by the lead burning process. The electro plating of the tank sheets has also been given a great deal of study. Another method of applying metal linings is where the molten metal is sprayed on the inner surface of the tank. Several tanks have been aluminum lined by this process, which is equally applicable for linings of nickel, monel metal, tin, copper, etc. This latter type of lining is especially useful where, while the lading is only very slightly corrosive in the steel shell, yet must be kept absolutely free from contamination. Examples of these ladings are spring water, glycerine, china oil, transformer oil, etc. Most of these materials do not require an I. C. C. specification tank, in which case the A. R. A. specification must govern. A. R. A. approval, however, is still required.

Although not definitely covered by these I. C. C. Specifications, tanks of special designs may be used for experimental purposes upon proper approval by the A. R. A. Tank Car Committee.

Developments in Aluminum Tanks

There have been quite a number of tanks in which the entire tank and fittings have been made of aluminum. These tanks again will be covered by an A. R. A. specification. Up to the present time it has been impossible to obtain aluminum sheets of the sizes and thicknesses required to build a tank in the same manner as the garden variety of steel tanks are built, namely: of two, three or four longitudinal sheets running full length of the tank. Such tanks as have been built have had the bottom sheets in three lengths and the top sheets either of the old barrel type or else with the upper longitudinal sheets made up each of three pieces. Aluminum plate manufacturers have so enlarged their equipment, however, that they will very shortly be in a position to furnish sheets of sufficient size so that these aluminum tanks may be built in exactly the same manner as steel tanks, that is, with the shell sheets running full length in one piece.

Due to the much lower tensile strength of the aluminum alley which it is economically desirable to use in the building of these tanks, the A. R. A. has permitted these to be built with a test pressure and a bursting strength comparable with that of the material, namely: 175 lb. bursting pressure versus 300 lb. for the steel tank and 35 lb. test pressure versus 60 lb. for the steel tank. As stated above these are not I. C. C. tanks, but A. R. A. tanks and therefore suitable for the transportation only of a limited list of commodities. These tanks have been built both non-insulated and insulated, dependent upon the characteristics of the lading.

Insulated Tanks

Passing on to the I. C. C. 104 Specification we have an insulated tank suitable for the transportation of ladings having a higher vapor pressure. The insulation is applied primarily to protect the lading from increased temperature, due to increase in the atmospheric temperature or the direct rays of the sun. This I. C. C. 104 tank is practically an I. C. C. 103 tank insulated. This tank has the same bursting pressure and test pressure requirements as the I. C. C. 103.

Regulations are being revised so as to permit the transportation in the I. C. C. 104 tank of ladings in which the vapor pressure at 100 degrees Fahr. does not exceed 40 lb. absolute during the months of March

to October inclusive, or 45 lb. during the months of November to February inclusive.

The insulation specified must have thermal efficiency equivalent to that of 2 inches of the material as called for in the specification. Any material which will develop this thermal efficiency is permissible, providing this insulation material has been approved by the Tank Car Committee. All tank appurtenance requirements are the same as those for the I. C. C. 103.

Riveted vs. Welded Tanks

Recently there has been quite a demand for the transportation of commodities in which the vapor pressure is higher than that permissible for the I. C. C. 104 tank but still considerably less than that usually transported in the forge welded tank. The difference in cost between the riveted tank structure and the welded tank structure made it very desirable for a design of car suitable for these commodities. To meet this demand the I. C. C. 104A design came into existence. This tank follows the same lines of construction as the I. C. C. 104 except it is heavier to meet the increased pressure requirements. The bursting pressure must be not less than 495 lb. per square inch, test pressure is 100 lb. per square inch.

The safety valves have a maximum popping pressure of 75 lb. per square inch and must be tight against vapor leakage at 60 lb. per square inch, and must have a discharge port area sufficient to prevent building up a pressure in the tank in excess of 75 lb. per square inch. This tank has no bottom discharge outlet, the only opening being the manhole. Expansion domes are prohibited. The various valves, gauges, etc. are located on top of and secured to the manhole cover and follow very closely the designs required in the forge welded tank. A heavy protective housing is applied over these valves, etc. so that they cannot be injured even if the car should be wrecked and the tank rolled over. This tank is provided with insulation having a thermal efficiency equal to 4 inches of compressed cork board.

The capacity of this tank is gauged in pounds of water at 60 degrees Fahr. for the reason that the permissible loading for this car is based on weight at a specified ratio to the pound water capacity of the tank. These tanks are never loaded to their full shell capacity, this loading ratio being based so that the tank can never be liquid full until the temperature of the lading has at least reached 105 degrees Fahr.

This tank will be suitable for ladings in which vapor pressure at 105 degrees Fahr. does not exceed ¾ of the test pressure, that is, 75 lb.

I. C. C. Specification 105A300 is for the forge welded tank. This is a development of the old A. R. A. Class V and later I. C. C. 105, again later I. C. C. 105A500. These specifications for the forge welded tanks include four different test requirements ranging from 300 to 600 lb. with the attendant permissible vapor pressures at 105 degrees Fahr. of 225 lb. to 450 lb., that is, ¾ of the test pressure.

The design of these tanks is well hedged in by specifications. The process of manufacture is also limited by specifications. Those limitations have been gone into very carefully by the very best engineering and metallurgical talent available and represent as economical a tank as it seems possible to build in to-day's state of the art and still meet the requirements of safety and rigors of modern train operation.

Forge Welded Tank Specifications

As is indicated by the specification classification number, that is, I. C. C. 105A300, I. C. C. 105A400, etc. the test pressure for the tank is the last group of figures in the specification designation. The regulations make it permissible to transport in these tanks commodities for which the vapor pressure at 105 degrees Fahr. does not exceed ¾ of the test pressure, that is, 225 lb., 300 lb., etc. This change from the old specifications, which called for a test pressure minimum of 500 lb., permits the building of a lighter tank and represents an economic saving to both the purchaser of the car, and, because of the reduction in the dead weight of the car, there is a material monetary advantage to the transportation companies, that is, the railroads. These car tanks may be made either cylindrical or spherical.

The insulation requirement in any one of these four I. C. C. 105A varieties of specification, are all the same. The safety valve for these tanks calls for a maximum popping pressure of not more than ¾ of the test pressure and for a valve which must be tight against vapor leakage at 80 per cent of the maximum popping pressure.

These tanks have no bottom discharge outlets, in fact no openings except the manhole opening. The valves, gauging apparatus, etc. are located on the top of the rolled open hearth steel cover and as in the case of the 104A tank, are effectually protected against breakage by means of a heavy housing. Wherever the specifications refer to various details needing approval, the Tank Car Committee of the A. R. A. is delegated as the approval agency.

Non-Insulated Containers

When we pass beyond the I. C. C. 105A variety of tank we go from the insulated to the non-insulated container. The 106A500 specification together with its companion 106A800 are for tanks to be mounted on and form a part of a multiple unit car in which the car structure is adapted to receive a relatively large number of these containers. The test pressures are 500 lb. and 800 lb. respectively. As stated above

these containers are non-insulated. Again we are advised that the permissible vapor pressure ladings in these containers will be ¾ of the test pressure, that is, 375 lb. or 600 lb., but due to the fact that these are non-insulated containers the temperature at which this maximum vapor pressure permissible must be taken is raised from 105 to 130 degrees Fahr.

In other words, where the container is non-insulated the vapor pressure curve must be moved up from 105 degrees Fahr. to 130 degrees Fahr. to obtain the vapor pressure limits.

Marked examples of these 106A500 specifications are found in the so-called 15-ton multi unit cars. The underframes for these cars are so constructed as to take a complement of fifteen containers each of a size sufficient to carry one ton of liquid chlorine. These containers were the old I. C. C. No. 27 specification, which specification has now been made obsolete for new equipment and is incorporated as a part of the specification 106A500.

The Helium Car

I. C. C. Specification 107A3350 was written to provide for the so-called helium car. This specification marks the high range of containers permissible for transportation on and as a part of a car. As the specification designation indicates, the test pressure of this car is 3,350 lb. This container is non-insulated and non-welded, being hollow forged or drawn in one piece. Again this is a multi unit car. The permissible gas pressure at 130 degrees Fahr. of this car is ¾ of the test pressure of the car, namely: 2512½ lb. The safety valve setting on this car is different from other cars in that the maximum popping pressure may be up to the test pressure of the car and the safety valve must be tight at 80 per cent of the test pressure, that is, at 2680 lb.

The Navy has two cars for the transportation of helium gas and the Army has one. The first of these cars built has three seamless forged steel cylinders. The total cubical capacity of these three cylinders is slightly over 1,500 cubic feet which capacity provides for the transporting of something in excess of 200,000 cubic feet of free helium gas. The gas is shipped under about 2,000 lb. pressure. These cars weigh something in excess of 200,000 lb. and because of the construction of the cylinders, are quite expensive. The Navy has also one car upon which is mounted a considerable number of smaller cylinders, somewhere in the neighborhood of 18 inches diameter. This car also has a cubical capacity of about the same as the 3-container car referred to above, and is operated at practically the same pressure. This car is also quite heavy, being considerably in excess of 200,000 lb.

Very recently a car has been proposed for the use of the Navy for the transportation of helium also under 2,000 lb. pressure. This car provides for six spheres, each having an internal diameter of 94 inches, the six having a combined cubical capacity of something over 1,500 cubic feet, which again will give a car having a capacity of something over 200,000 cubic feet free helium. These spheres, as proposed, are to be built of two hemispheres fabricated from plates having a nominal thickness of 1-11/16 inches and made of chrome vanadium steel.

Due to the process of manufacture of these hemispheres the outer edge, that is, where the two spheres are joined together, is increased to a thickness somewhere in the neighborhood of 2-3/16 inches. It is proposed to weld these spheres together using the electrical fusion welding process. This process is not permissible in any of the I. C. C. 105A varieties of specifications, the 106A varieties nor the 107A specification, which latter specification does not permit welding of any kind.

The marked saving in the use of this car is that of weight, as well as a saving in initial cost. The spherical shape versus cylindrical shape of container permits practically half of the thickness of wall shell in the sphere over that required in the cylinder. The high tensile strength of the special alloy steel over the welding quality steel necessary in forge welding has a marked bearing on the thickness of material required to resist test pressures.

Improved Safety Valves

In the latest I. C. C. specifications it has been found possible to increase the permissible vapor pressures to within ¾ of the test pressures, due to the fact that modern construction of safety valves has produced a valve that is reliable to a much narrower range than heretofore. The function of the safety valve is to remove the pressure in the tank when an emergency exists so that this pressure can never approach near the danger line and damage the tank, and yet, at the same time, provide the tank with a vapor tight closure under all ordinary conditions found in transportation. For cars designed to transport commodities which develop a vapor pressure under ordinary transportation conditions, the tight safety valve is a very marked economic feature as well as being in the best interests of safety.

Chemical Facts and Figures

John A. Chew Leaves Warner to Become Vice-President, Federal Phosphorus

Takes Charge of Eastern Territory for Swann Subsidiary—Swann Corp. also Announces Formation of Swann Research, Inc., to Co-ordinate Research Work of all its Subsidiaries—New Company Capitalized at $250,000.

John A. Chew, formerly vice-president, Warner Chemical Co. and Westvaco Chlorine Products, Inc., and president, Barium Products, Inc., becomes vice-president of the Federal Phosphorus Co. of the Swann Corp., Birmingham, Ala., in charge of the Eastern territory. The company announces the formation of Swann Research, Inc., with capital of $250,000 and laboratories

Theodore Swann

John A. Chew

at Anniston, Ala., to coordinate and unify the research and development activities of the various subsidiaries of the Swann Corp.

John A. Chew was born in Charlestown, W. Va., January 5, 1884. He went to New York in 1903, and began his career in the chemical industry as assistant to C. A. Loring, then New York manager, Rosengarten & Sons, remaining with that company after it became Powers-Weightman-Rosengarten Co., until 1911. From 1912 through 1915 he was salesman for the Bauer Chemical Co., in 1916, became sales manager, British-American Chemical Co., and in the following year, he became associated with the Warner Chemical Co. as sales manager, which position he occupied until February 1, upon which date he began his official connection with Federal Phosphorus Co. His headquarters are in new offices in the Graybar Building, New York. Associated with him will be R. C. Anthony, formerly with E. J. Lavino & Co., and H. P Walmsley, formerly at the Federal Abrasives Co.'s Philadelphia office.

Mr. Chew is one of the most widely known sales executive in chemical fields. His vigorous and friendly personality has impressed itself in many constructive ways upon the commercial activities of the industry. He was one of the organizers of the Salesman's Association and has been an active spirit in the life of the Chemists' Club.

The establishment of an Eastern office with Mr. Chew in charge, is another step in the expansion of the Swann Corp. and followed close upon the announcement of the formation of Swann Research, Inc., to consolidate the research activities of the companies many subsidiaries. The work of this organization will be divided into three groups, commercial research, laboratory research, and development department. The company will handle all future patents on processes and products and assign new products to the other subsidiaries on a royalty basis.

The following officers will serve as a board of directors: president, Theodore Swann; vice-president in charge of commercial research, B. G. Klugh; vice-president in charge of research, J. N. Carothers; vice-president in charge of development, W. R. Seyfried; vice-president in charge of St. Louis research and development, Paul Logue; treasurer, C. M. Jesperson; director, F. A. Lidbury.

The other subsidiaries of the Swann Corp. include Federal Phosphorus Co., Federal Abrasive Co., Federal Carbide Co., Southern Managanese Corp., all of Anniston; Jax Plant Food Co., Naphthalene Products Co., Birmingham Glass Works, all of Birmingham; Iliff-Bruff Chemical Co., Hoopeston, Ill., and Provident Chemical Works, St. Louis.

At a special meeting of stockholders of the Swann Corp., November 29, 1929, authorized capital was increased from 120,000 to 2,100,000 shares, of which 100,000 shares may be preferred stock. Common is of no par value and is divided into 1,700,000 Class A and 300,000 Class B shares. It is proposed to issue a substantial block of the new Class A stock, but no public offering will be made, as all the immediate capital increase desired has been underwritten by interests intimate with the company's operations.

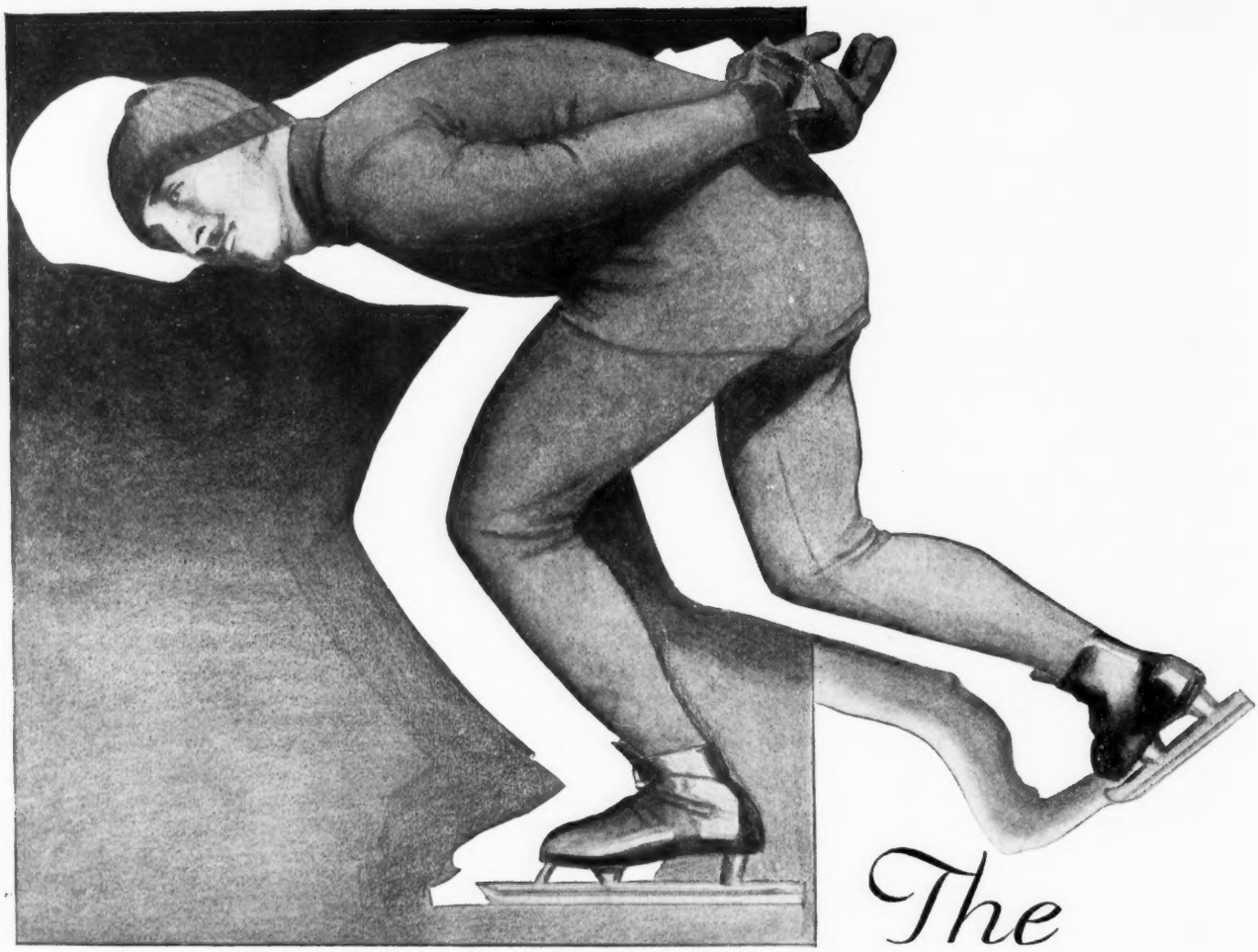
Board of directors of the company includes the following: Theodore Swann, Paul J. Kreusi, F. P. Cummings, W. H. Hassinger, R. I. Ingalls, C. M. Jesperson, Crawford Johnson, F. A. Lidbury, W. E. Mitchell, W. N. Walmsley, W. H. Weatherly, Oscar Wells, John Maxwell, and Morris W. Bosh.

Williamson Bill Proposes to Transfer Prohibition Work to Justice Dept.

Williamson bill, recommending transfer of the enforcement work of prohibition to the Department of Justice, with supervision of industrial alcohol and medicinal spirits remaining with the Treasury Department, is approved by Andrew W. Mellon, Secretary of the Treasury, and Dr. James M. Doran, Commissioner of Prohibition, in hearing before the House Committee on Expenditures, January 22. At same time, a group of representatives of alcohol consumers, including Martin H. Ittner, chief chemist, Colgate-Palmolive-Peet Co.; Harrison E. Howe, editor, *Industrial & Engineering Chemistry*; H. S. Chatfield, president, National Oil, Paint & Varnish Association; A. Homer Smith, American Drug Manufacturers' Association; Frank A. Blair, president, Proprietary Association; Dr. Charles L. Reese, Manufacturing Chemists' Association; and Fred S. Rogers, Flavoring Extract Manufacturers' Association; issued statement opposing bill on grounds that it does not satisfactorily differentiate between the permissive features of the national prohibition act and the enforcement features of that act. They recommended extensive revision to guarantee the rights of legitimate industry and that administration of the permissive features of the act should be left in the Treasury Department.

American Cyanamid Co., New York, acquires plant and goodwill of Beaver Chemical Corp., Damascus, Va., manufacturer of sulfur colors and alizarines. Calco Chemical Co. will act as sales agents for these products whose manufacture will continue under the direction of the present staff.

Kalbfleisch Corp., New York, subsidiary of American Cyanamid acquires the business of the Central Chemical Co., Kokomo, Ind., and will take over operation and management of that company, manufacturer of aluminum sulfate.



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Personal and Personnel

Dr. Herbert H. Dow, president, Dow Chemical Co., receives the Perkin Medal for 1930, January 10, at the Chemists' Club, New York. Speakers at the presentation were Dr. Dow on, "The Economic Trend in the Chemical Industry;" James T. Pardee, vice-president and secretary, Dow Chemical Co.; and E. O. Barstow, Dow Chemical Co.

J. M. Whitaker resigns as manager, agricultural department, Barrett Co., to become associated with the nitrate of soda sales division, Anglo-Chilean Consolidated Nitrate Corp. Prior to his association with the Barrett Co. he was connected with the fertilizer department, H. J. Baker & Bro.

John V. N. Dorr, president, Dorr Co., New York, is awarded the James Douglas Medal of the American Institute of Mining and Metallurgical Engineers in recognition "of his invention of apparatus and achievement in developing and improving hydrometallurgical practice."

Joseph V. Santry is appointed president, International Combustion Engineering Corp., New York, by Wilfred R. Wood and the Irving Trust Co., receivers of the corporation. James Cleary, formerly western manager of the company is appointed general sales manager.

R. V. McGrew, formerly of University of Nebraska, Northwestern University and Harvard University, and now a research chemist, Rohm & Haas Co., is transferred from company's Philadelphia laboratory to the Pennsylvania State College.

George Eastmen, chairman of the board, Eastman Kodak Co., is presented with a gold cigarette chest January 16, by employees in commenoration of the fiftieth anniversary of the founding of the company.

Oscar T. Quimby, chemist, United States Forest Products Laboratory, Madison, Wis., becomes associated with research division, Proctor & Gamble Co., Cincinnati.

Frederic J. LeMaistre, consulting chemical engineer, Philadelphia, is appointed executive secretary, American Institute of Chemical Engineers.

Commissioner G. S. Ferguson, Jr., is named chairman, Federal Trade Commission for 1930, succeeding Commissioner Edgar A. McCulloch, chairman during the past year.

Edgar B. Brossard, of Utah, is named chairman, United States Tariff Commission, for 1930, replacing Thomas O. Marvin, of Massachusetts, who continues as a member of the Commission.

William S. Gray, chairman, William S. Gray & Co., New York, celebrates the fiftieth anniversary of the establishment of his business.

Clinton S. Ludkins resigns as vice-president, Allied Chemical & Dye Corp., and is succeeded by F. J. Emmerich, formerly comptroller.

Residuary estate of more than $5,000,000 of Stuart Wyeth, president, John Wyeth & Bro., Philadelphia, is left to Harvard University.

J. C. Baldwin, vice-president, Agricultural Chemical Co., Los Angeles, is made a director, Western Sulphur Co.

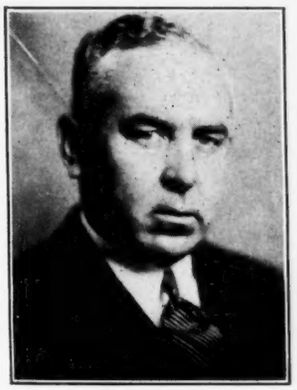
O. S. Doolittle, vice-president and treasurer, American Fluoride Corp., New York, severs his connection with that organization.

W. Catesby Jones is appointed acting chief chemist, Virginia Department of Agriculture, succeeding Dr. J. B. Weems.

Charles A. Wagner Co., Philadelphia, chemicals and colors, moves to 421 North st., that city.

Industrial Alcohol Institute Elects Richard H. Grimm President

Industrial Alcohol Institute elects following officers at annual meeting held in New York, January 8: president, Richard H. Grimm, president, American Commercial Alcohol Corp.; vice-presidents, S. S. Neuman, Publicker Commercial Alcohol Co., and A. K. Hamilton, alcohol division, Pennsylvania Sugar Co.; treasurer, H. I. Peffer, president, American Solvents & Chemical Corp.; executive secretary, Dr. Lewis H. Marks.



Richard H. Grimm

Richard H. Grimm, who succeeds V. M. O'Shaughnessy, president Rossville Commercial Alcohol Corp. as president of the institute, was born January 28, 1888, in Des Plaines, Ill. His entry in the alcohol industry was as an office boy, in 1904, and he has successively held positions in the operating, sales, and executive departments, succeeding to the presidency of the American Distilling Co. in 1925. Upon the merger resulting in the formation of the American Commercial Alcohol Corp. in 1928, he was elected president.

He is a thirty-second degree Mason, and a member of the Chemists' Club, the Upton Club, the Sleepy Hollow Country Club, and the Paint, Oil and Varnish Club of New York.

Obituaries

Dr. Julius B. Weems, chief chemist, Virginia Department of Agriculture dies at his home in Ashland, Va., January 25, aged 64. He was born in Baltimore, August 27, 1865 and became associated with the Virginia Department of Agriculture in 1915 after a career as an agricultural chemist and professor. He was a member of the American Chemical Society, the Society of American Bacteriologists and a fellow of the American Association for the Advancement of Science.

Dr. Andrew Fiske, president, Rumford Chemical Works, Providence, R. I., dies at Weston, Mass., January 27, aged 76. He was graduated from Harvard College in 1875, and from Harvard Law School in 1878. He was awarded A. M. and Ph.D. degrees by Harvard in 1886. He had been long a prominent lawyer in Boston.

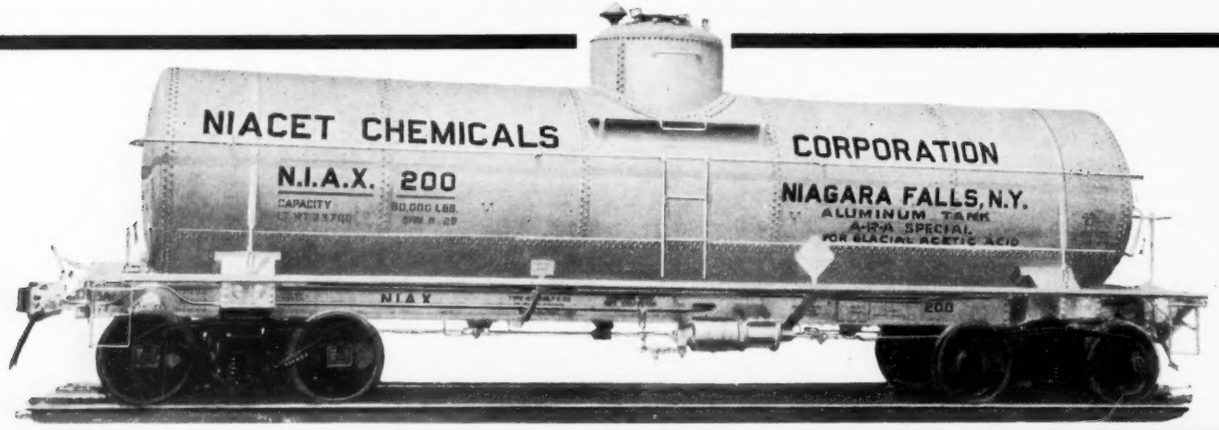
Dr. Henry Froehling, organizer of Froehling & Robertson, consulting chemists, Richmond, Va., dies at his home in that city, January 25, aged 85. He was a member of the American Chemical Society, the American Institute of Mining and Metallurgical Engineers and other scientific societies.

Matthias Welles Parsons, founder, M. W. Parsons Imports and Plymouth Plymouth Organic Laboratories, New York, dies January 10, aged 80. He founded the business which bears his name in 1908 and had come to be known as the "Dean of Ann Street," where his business had been located since its establishment.

John C. Collins, a vice-president, Certainteed Products Corp., New York, dies January 14, aged 46. He became associated with the company in 1906, was later made vice-president, and came to New York from St. Louis in 1921.

Warren P. King, vice-president, Aluminum Co. of America, dies January 16, aged 64.

✓✓✓✓ Acetic Acid ✓✓✓✓



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News of the Companies

Innis, Speiden & Co., New York, holds annual sales convention, January 8 and 9, in company's new offices at 117 Liberty st About forty-three salesmen and branch managers attended the sessions which were under the direction of H. G. MacKelcan, sales manager. Branch managers from Chicago, Cleveland, Philadelphia, Boston, Charlotte, N. C., Gloversville, N. Y., and Jersey City, together with salesmen from these districts and the New York district, attended these meetings during which the problems of the past year were discussed with a view towards improving methods for the future. Co-operation and coordination of effort were stressed.

Givaudau-Delawanna, Inc., New York, synthetic aromatic chemicals, holds annual sales convention, January 6 to 8. About twenty of the company's representatives and sales executives gathered at the three-day meeting under the direction of E. C. Kunz, executive manager, to discuss common problems of the sales organization. Considerable study was given to the development of sales plans and policies connected with the merchandising of odors to industry.

Bakelite Corp., H. W. Ahlbeck, assignor, is granted patent for formaldehyde production by which a mixture of methanol and a gaseous oxidizing agent is brought into contact with a heated catalyst. The highly heated reaction mixture is cooled rapidly by bringing it directly into contact with a cool aqueous liquid to prevent formation of undesired by-products.

Calco Chemical Co. is not a maker of dry colors as stated in the review of American chemical progress during 1929, which appeared in the January issue. The company does not make dry colors although it makes other dyes and intermediates used by dry color manufacturers.

General Aniline Works announces eight new dyes: Indanthren Blue RSA, Indanthren Orange 2RTA, Nigosine OPR, Supramine Yellow RA, Zambesi Black VA, Diamine Scarlet C3BA, Katigen Brown GRA, and a new member of the Fastusol series.

Central Chemical Co., Hagerstown, Md., acquires business of Washington, Alexander, Cook & Co., fertilizers, and changes name of latter company to Charles Town Fertilizer Co.

Montana Phosphate Products Co., Deer Lodge, Mont., is incorporated with authorized capital of $50,000 to work phosphate holdings near Garrison.

Davison Chemical Co. and Silica Gel Corp., Baltimore, move into new quarters on the eighteenth floor of the First National Bank Building, that city.

U. S. Gypsum Co. publishes the "Red Book of Building Material," a catalogue of building materials manufactured and sold by the company.

U. S. Industrial Alcohol Co. secures patent for process for manufacture of absolute alcohol assigned by Eloi Ricard, France.

Philadelphia Quartz Co. publishes bulletin No. 31, entitled, "Curing Concrete with Concrete Special Silicate of Soda."

Morgan Co., Peoria, Ill., lacquers, purchases inventories, good will, formulas, and trade-marks of Hockaday, Inc., Chicago.

Koppers Co. leases twenty-fifth floor in Lincoln Building, 60 East 42st., New York.

Ciba Co. opens local office in Greenville, S. C. John C. Cosby is in charge.

D. H. Litter Co., New York, announces removal to 110W. 40 st.

John D. Gillis Transferred To Monsanto's London Headquarters

John D. Gillis, assistant to the president, Monsanto Chemical Works, is transferred to the London office, headquarters of of Graesser-Monsanto Chemical Works, Ltd. He sailed from New York, January 10, on the S. S. "Olympic."

John D. Gillis

He became assistant to Edgar M. Queeny, president, Monsanto Chemical Works, late in 1928. Previous to that he had been president and general manager, John T. Milliken & Co. He goes to London to carry on the development work inaugurated by John F. Queeny, chairman of the Monsanto board, upon his recent visit to England.

Samuel W. Allender succeeds him as assistant to the president, Monsanto Chemical Works.

Senate Probes Chemical Lobbying

Senate lobby investigating committee during past month questions Herman A. Metz, president, General Dyestuffs Corp., New York, on his contributions to the campaigns of Senator William H. King (Dem.) Utah; receives a deposition by Francis P. Garvan, head of the Chemical Foundation, Inc., charging German influence in formation of tariff schedules on importation of chemicals; and queries Eugene R. Pickrell, on his lobbying activities eliciting only emphatic denials that he is in any way connected with the I. G. Farbenindustrie. The latter declared that he was employed by Herman A. Metz and that his interests were to prevent increased chemical duties and to oppose retention of American selling price basis for tariff on dyes.

Keystone Chemical in Receiver's Hands

Keystone Chemical Co., now in hands of receivers, is to be sold to satisfy claims of certificate holders and creditors. Real estate will be sold at foreclosure sale to satisfy a trust mortgage held by Exchange National Bank of Olean and Calvin Ventress, Chicago, Ill., who are trustees. Mortgage will be closed in a Federal Court of the Northern New York district. Procedure will require several weeks during which time and until property is taken over by new company, the factories at Glenfield will be closed.

Pyrites Co., Inc., takes over business of the American branch, Pyrites Co., Ltd., and will continue to operate plant at Wilmington and office in New York. Officers are A. D. Ledoux, president; A. S. Clift, P. M. Arnold and J. H. Saville, vice-presidents; W. de la Montagnie, treasurer; and W. A. Paxton, secretary.

Drug & Chemical section, New York Board of Trade & Transportation, begins organization for publicity and sale of tickets to annual dinner of the drug, chemical and allied trades, to be held at the Hotel Roosevelt, New York, March 4.

Diamond Alkali Co. issues second edition of "Diamond Alkali Handbook," containing material of interest to all users of alkalis. Copies will be furnished upon request.

Allied Chemical & Dye Corp. receives tax refund of $107,664 from Bureau of Internal Revenue on account of over-assessment of taxes for 1921.

A. Klipstein & Co., New York, announces new acid color, AKCO Milling Yellow 2G.

Nitrate Producers' Association Plans Direct Sales Organization

Nitrate Producers' Association approves a plan to sell Chilean nitrate of soda by the association direct to retailers instead of through existing sales organization, producers or large distributors. The new plan, if approved by the Chilean Government, will become effective July 1, 1930, and will cover all sales except for the United States and possessions. The plan contemplates a central sales committee with headquarters in London to be composed of six members, one each to be named by the Nitrate Producers' Association, Chilean Government, Lautaro Nitrate Co., Anglo-Chilean Consolidated Nitrate Corporation, Santiago Sabioncello, and one representative for the group of small producers.

The committee, in conjunction with subcommittees located at strategical points, will direct sales allocations, contract for transportation and direct trade promotion activities. It is hoped in Chilean circles that the new plan, if approved, will lead to economies in distribution, says the Department of Commerce.

Samuel Cabot Holds Sales Meeting

Samuel Cabot, Inc., Boston, holds annual sales convention, January 13 to 15. Among the speakers at the first day's session were Samuel Cabot, president of the company, March G. Bennett, treasurer, M. M. Osborne, Albert Pauly, Everett G. Thompson, manager, Philadelphia office, and Oscar P. Voelker, Chicago manager. After a visit to the company's Chelsea plant on the following day, talks were given by James J. Condon, San Francisco manager, Thomas W. Blades, Lynn M. Scofield, Frank M. Foster, and Ralph Godshalk. The convention closed January 15 with the reading of a paper on "New Homes for Old," by Sydney L. Jacobs. About thirty-five of the company's representatives attended the convention at which most of the discussion centered about the problems of the past year with special reference to the prospects for 1930.

Carbon Monoxide Eliminator Corp. is formed with offices in New York and Pittsburgh, to become sole licensee under patents for eliminating carbon monoxide from the exhaust of internal combustion engines, using a catalyst which changes it to carbon dioxide. Dr. J. C. W. Frazer, chairman, chemistry department, Johns Hopkins University, holds patent. Officers are president, J. H. Newmark; vice-president, John T. Ryan; treasurer, George H. Deike; secretary, E. H. Kellogg.

Du Pont Cellophane Co. announces appointment of Z. S. Allen to handle development of cellophane as a utility material. He succeeds F. R. Downs, who assumes position of general manager, Lamicel Products, Inc.

Anglo-Chilean Consolidated Nitrate Corp. reports 1929 production of approximately 410,000 metric tons of nitrate of soda at Maria Elena plant, an increase of about 15 per cent over 358,000 metric tons produced in 1928. December output totaled 41,800 tons.

Decapo Chemical Corp., New York, leases 3,000 square feet in new building of Rauchback-Goldsmith Co. in Newark, N. J. Robert L. Dean is president of the company.

New York Wax Importers' Association, Inc., elects following officers: president, G. C. Elmore; vice-president, A. H. Hoffman; treasurer, W. F. Leary, and secretary, R. E. Sievert.

Lacquer Institute discusses means of undertaking a uniform cost accounting system at meeting held in Hotel McAlpin, New York, January 22.

Vanadium Corp. publishes second number of the "Vancoram Review," published quarterly.

John Lucas & Co. Merges Interests with Sherwin-Williams Organization

John Lucas & Co., Inc., Philadelphia, merges with Sherwin-Williams Co., following negotiations between Ernest T. Trigg, president, of the former company, and George A. Martin, president Sherwin-Williams Co. The Lucas company will continue to be operated as a separate organization, although its assets are transferred under the terms of the agreement.

This merger brings into the Sherwin-Williams group another large and important paint manufacturer and national distributor along with other important concerns already making up this group, namely, Acme White Lead & Color Works, Detroit White Lead Works, Lowe Bros. Co., Martin-Senour Co., which together with the present Sherwin-Williams organization represents by far the largest paint and varnish manufacturing unit in the world.

John Lucas & Co., Inc., was established in Philadelphia in 1849 by John Lucas. There ware five Lucas factories with the original plant at Gibbsboro, N. J., the plants at Chicago, and West Berkeley, Calif., all operated under the Lucas name. The company also owns the paint and varnish manufacturing company of W. W. Lawrence & Co., Pittsburgh, and the Cleveland Varnish Co., Cleveland. It owns an operating interst in the Lucas Kil-Tone Co., Vineland, N. J., manufacturers and distributors of insecticides and fungicides. It owns a substantial interest in and operates the plant of the British Paint & Lacquer Co. at Cowley, England.

Marley Purchases Miner Stock

Marley Chemical Co., New York, solvents, purchases stock of Henry Miner & Son, Inc., West Orange, N. J., following a decision of the latter company to wind up its affairs. In addition to taking over that company's stocks of alcohol and other solvents, the Marley Chemical Co. also assumed a few unexpired contracts, but did not purchase the accounts receivable, good will, or anything but actual warehouse stocks.

Henry Miner & Son, Inc., was founded when the Miner-Edgar Co. passed into the hands of the receiver and was ultimately liquidated. The Marley Chemical Co. was founded about the same time by a group of employees and officers of the Miner-Edgar Co.

Compressed Gas Manufacturers' Association holds seventeenth annual meeting in the Hotel Astor, New York, January 28. The following officers were elected: president, J. R. Colby, Canadian Carbonate, Ltd.; first vice-president, E. C. Turner, Air Reduction Corp.; second vice-president, H. W. Cole, Liquid Carbonic Corp.; secretary-treasurer, F. R. Featherston. Among the speakers were H. M. Hooker, Charles Kandel, H. D. Edwards, E. G. Luening, W. B. Campbell, J. C. Stephenson, Dr. J. T. Norton, Jr., F. Eder, V. Willoughby and A. A. Heller.

Jefferson Lake Oil Co., New Orleans, discovers sulfur while drilling at Jefferson Island Salt Dome, Lake Peigneur. The stratum is 207 feet of sulfur rock and surveys are said to indicate from 600 to 1,000 acres of potential sulfur rock. Company states that negotiations are under way to interest eastern or foreign capital in the development, or it may erect a plant to produce the sulfur.

Curtin-Howe Corp., United Chemicals subsidiary, licenses American Smelting & Refining Co. as general agent for manufacture and sale of ZMA, wood preservative, in Mexico.

Atlanta Chemical Co.'s plant at Atlanta, Ga., is partially destroyed by fire with estimated damage of $30,000.

Roirepus Chemical Co., Inc., New York, changes name to Superior Chemical Co.

Bakelite Corp. markets a new marine varnish for use on motor boats.

General Dyestuff Corp. Loses Decision on Tariff Assessment

In case of General Dyestuff Corp. v. the United States, the provision for the assessment of imported goods upon the basis of the American selling price of a competing domestic article, in paragraphs 27 and 28 of the tariff act of 1922, is subject to a strict construction, according to a decision of the United States Customs Court. It further declared that, in connection with the determination of assessments under these sections, only actual commercial transactions, or actual trade offers of the definite comparable article, can be applied in fixing the American selling price of a competing domestic article.

In its opinion the court commented that under the tariff act of 1922 is presented "a very remarkable plan of taxation" never before appearing in American law, in which the ad valorem, always heretofore the value of the article taxed, is made into the value for tariff purposes of a competitive domestic article, not itself taxed by the tariff law.

The court explains that the case involved a mixture of dyes not previously marketed in the United States, but the individual constituents of which had been sold here. Effort was made to set the American selling price by determining the proportionate value of these constituents and taking such a figure as the taxable value. This was held not to be permissible by the Customs Court.

Zinc Cartel Collapses

Zinc cartel collapses due to overproduction in certain countries. The enlarged 1929 demand for sulfuric acid in many European countries where it is produced almost exclusively from zinc ores is probably the indirect cause of the present zinc situation. Poland, for example, during the year experienced a shortage of sulfuric acid, accompanied by overproduction of zinc. Belgian sulfuric acid output which is largely from zinc blende is about 30 per cent more than in previous years; and the Belgian zinc market is unstable. No reports on the zinc situation in Great Britain are available at present, but zinc ores are used for only about 10 per cent of British sulfuric acid, with other raw materials as follows: Pyrites 44, spent oxide 25, and brimstone 21 per cent.

Rayon mergers are said to be projected by Tubize Artificial Silk Co. and American Chatillon Corp. into the Tubize Chatillon Corp.; and by Industrial Rayon Corp. with American Bemberg Corp., American Glanzstoff Corp., and American Enka Corp., all three of the latter being subsidiaries of Algemeene Kunstzijde Unie.

Stacey Engineering Co., Columbus, Ohio, merges into one organization P. H. & F. M. Roots Co., Connersville Blower Co., Wilbraham-Green Blower Co. and Stacey Bros. Gas Construction Co.

Linseed oil duty is set at 4.5 cents per pound by senate. This was a change from previously agreed upon rate of 3.7 cents per pound.

Du Pont's Mosebach Acquisition Seen as Effort to Capture Solvents Market

Du Pont's acquisition of control of the lacquer works belonging to the Oscar Mosebach A-G of Riesa, in Saxony, is interpreted as being one of the first moves in an intensified American effort to capture a larger share of the European markets for solvents. It seems clear enough, says "The Chemical Trade Journal" that the recent Wall Street crisis has, by slowing down the rate of motor car production for the domestic market, diminished the home outlet for cellulose lacquers at a time when production of the solvents required is steadily increasing. The Du Pont concern is to use the Riesa factory, which will still be run under the old management, for the manufacture of its Duco lacquers to supply the whole of the German market. The company has also secured a majority holding in the Hungarian paper works "Fuzfoer," which is now to make nitro-cellulose and then lacquers using solvents imported from America. By its participation in the German Ford Company the I. G. Farbenindustrie is assured of one good outlet for its solvents and lacquers, but in the export trade it is meeting in most markets with keen competition. A vigorous attempt is being made to push German butyl acetate on the Australian market, but the hold which American producers have there cannot easily be shaken, though the competition has led to drastic cutting of quotations and the usual incidentals of a price war.

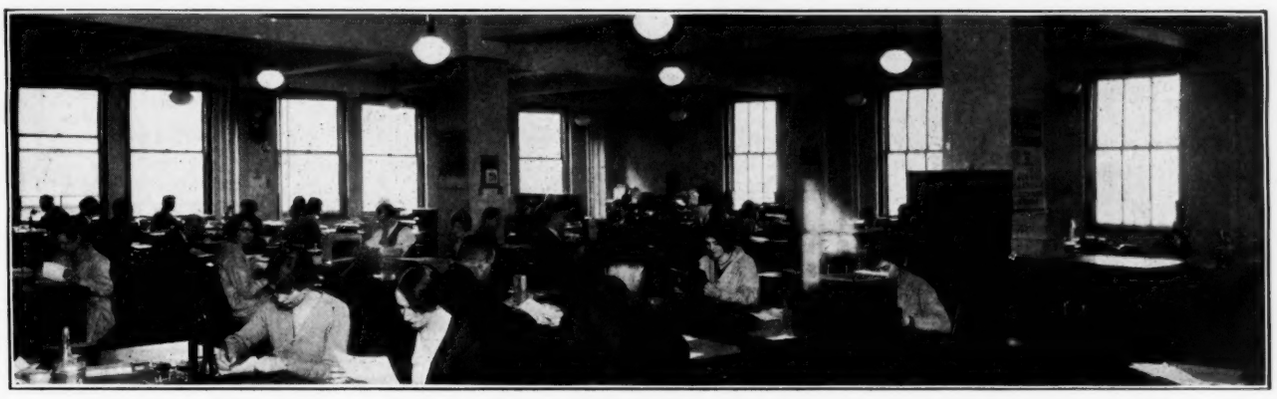
Synthetic Dye Imports Increase

Imports of synthetic dyes in 1929 increased nearly 1,000,000 pounds and were greater by approximately $1,000,000 than in 1928, according to the chemical division of the Tariff Commission. Of the 6,321,766 pounds of dyes, valued at $5,293,579, imported during the year, Germany and Switzerland supplied approximately 96 per cent, according to joint compilations of the Commission and the Department of Commerce. A larger proportion than is listed in the statistics, however, is believed to be of German and Swiss origin, a considerable part of the remaining 4 per cent being shipped through other countries.

Xylose from cottonseed hulls has been produced experimentally by the United States government which has been working for about a year in co-operation with the Federal Phosphorus Co., Anniston, Ala. Samples for experimental purposes will be furnished free upon application to the Bureau of Standards, Washington, D. C.

Associated Fertilizer Manufacturers of America holds annual meeting in Baltimore, January 28. Following officers were reelected: president, William E. Valliant; vice-president, George A. Whiting; and secretary-treasurer, J. E. Totman, all of Baltimore.

American Electrochemical Society will hold Fall meeting at Hotel Statler, Detroit, September 25, 26 and 27.



View of new general offices of Innis, Speiden & Co., at 117 Liberty St., New York.

The Financial Markets

E. I. du Pont de Nemours & Co. Reports Net of $78,171,730 for 1929

Profit Equivalent to $7.09 Per Share Based on Average Number Outstanding During Year—This compares with $6.27 in 1928—Based on Shares Outstanding at End of Year Profit is $6.99 Against $5.68.

Report of E. I. du Pont de Nemours & Co. and subsidiaries for year ended December 31, 1929, shows net income of $78,171,730 after interest and federal taxes, equivalent after debenture dividends, to $7.09 a share (par $20) on 10,196,777 average number of common shares outstanding during the year. This compares with $64,097,797 or $6.27 a share on the equivalent of 9,359,374 shares in 1928. Based on 10,339,242 common shares outstanding at end of year, 1929 net income is equal to $6.99 a share and compares with $5.68 figured on same share basis in previous year. The 1928 earnings include income of Grasselli Chemical Co. for month of December only.

Profit and loss surplus on December 31, last, totaled $144,920,215 against $105,710,319 at end of 1928.

Consolidated balance sheet as of December 31, 1929, shows total assets of $541,986,714 compared with $463,333,203 at end of 1928. Current assets, including $36,604,807 cash and marketable securities, amounted to $106,996,046 and current liabilities $22,398,366 as compared with current assets of $108,329,114 and current liabilities $22,285,011 at end of previous year.

Consolidated income account for year 1929, compares as follows:

	1929	*1928*	*1927*	*1926*
§Income from oper	$34,212,150	$22,464,103	$15,742,818	$14,803,724
G. M. Divs	42,939,453	37,929,328	28,941,598	23,621,947
Misc inc	4,848,179	¶6,259,607	2,458,281	4,889,900
Total income	$81,999,782	$66,653,038	$47,142,697	$43,315,571
Fed tax prov	3,749,359	2,470,899	1,107,881	1,256,602
Interest	78,693	84,342	86,984	89,395
Net income	$78,171,730	$64,097,797	$45,947,832	$41,969,574
Deb divs	5,871,103	5,364,559	4,833,864	4,770,410
Com divs	60,163,216	49,655,669	35,930,661	33,267,062
Surplus	$12,137,411	$9,077,569	$5,183,307	$3,932,102
Prev surp	105,710,319	97,785,243	66,417,566	62,669,541
Srp fr mn int	a5,927,402	.....	.....	.....
Surp adj	.....	‡1,218,900	*2,528,944	4,696,652
Rev. G. M. stk	24,953,050	19,962,440	26,184,370	.....
Total surplus	$148,728,182	128,044,152	$100,314,187	$71,298,295
Pension res	3,807,967	.....	.....	4,880,729
Surp appro	.....	†22,333,833	.....	.....
Appro fr cont	.....	.....	2,528,944	.....
P & L surplus	$144,920,215	$105,710,319	$97,785,243	$66,417,566

*Surplus resulting from revaluation of Canadian Industries, Ltd., common stock. ‡From issue of 101,575 additional debenture stock. §Includes equity in earnings of controlled companies. †Surplus appropriated in connection with issue of 149,392 no-par shares of common stock for Grasselli properties and for additional capital required relative to issuance of new $20 par value stock. ¶Includes $2,286,000 profit from sale of 114,000 shares of United States Steel common stock. (a) Surplus resulting from acquisition of minority interests in Du Pont Rayon Co., Du Pont Cellophane Co., Inc., and Du Pont Ammonia Corp.; entire interest in Krebs Pigment & Chemical Co., and additional interest in Canadian Industries, Ltd., etc.

Consolidated balance sheet of E. I. du Pont de Nemours & Co. as of December 31, 1929, compares as follows:

	1929	*1928*	*1927*	*1926*
Assets				
Plt & prop	$214,936,557	$133,101,539	$80,070,099	78,218,545
Pats, gwl, etc	27,965,703	25,082,391	24,967,057	24,884,007
Cash	20,977,697	20,936,498	17,512,171	17,307,028
Nts & acts rc	27,080,168	29,334,146	14,709,249	14,857,203
Inventories	43,311,072	33,627,338	23,224,515	23,305,505
Mark secur	*15,627,109	*24,431,133	15,084,050	*18,364,817
Invest sec	191,210,097	196,025,038	175,726,738	145,459,123
Def items	878,311	795,120	146,383	187,446
Total	$541,986,714	$463,333,203	$351,440,262	$322,583,674
Liabilities				
Deb stock	$99,531,983	$92,811,283	$80,564,398	$79,926,883
Com stk	†206,784,840	‡196,773,500	133,082,900	133,082,900
Bonds	1,457,000	1,624,300	1,668,500	1,711,500
Accts pay	12,758,885	13,332,285	6,580,815	6,715,052
Notes pay	3,050,000	3,000,000	.....	.....
Divs pay	5,724,993	§4,772,687	§1,219,950	§9,534,387
Def liab	864,489	1,180,040	1,068,140	1,285,102
De res, etc	44,602,857	¶44,128,789	¶29,470,316	¶26,910,284
Res for contg, ins, pen, etc	22,291,452	.....	.....	.....
Surplus	144,920,215	105,710,319	97,785,243	66,417,566
Total	$541,986,714	$463,333,203	$351,440,262	$322,583,674

*Includes call loans. †Represented by 10,339,242 shares, par $20. ‡Represented by 2,811,050 no-par shares. §Includes accrued interest. ¶Includes reserves for insurance, contingencies, pensions, etc.

Commercial Solvents Net Higher

Report of Commercial Solvents Corp. for year ended December 31, 1929, shows net profit of $3,667,402 after depreciation, federal taxes, inventory adjustments, etc., equivalent to $1.50 a share on 2,434,091 shares of no-par stock outstanding at end of year after 10 for one split-up. This compares with net profit of $2,929,420 in previous year, which computed on above share basis is equal to $1.20 a share.

Net profit for fourth quarter of 1929 was $857,739 after above charges, equal to 35 cents a share on 2,434,091 shares, comparing with $1,011,738, or 41 cents a share on above shares in preceding quarter and $829,645, or 34 cents a share, in fourth quarter of previous year.

Income account for year 1929 compares as follows:

	1929	*1928*	*1927*	*1926*
*Oper profit	$4,407,922	$3,555,353	$2,579,967	$2,444,334
Other income	383,136	153,816	76,764	112,222
Total income	$4,791,058	$3,709,169	$2,656,731	$2,556,556
Charges	233,154	308,440	213,796	486,847
Federal taxes, inven, adj., etc	890,502	†471,309	430,061	361,918
Net profit	$3,667,402	$2,929,420	$2,012,874	$1,707,791
Dividends	1,957,855	1,837,667	1,306,332	555,364
Surplus	$1,709,547	$1,091,753	$706,542	$1,152,427

*After depreciation.
†Includes federal taxes for prior years.

Balance sheet of Commercial Solvents Corp. as of December 31, 1929, compares as follows:

	1929	*1928*	*1927*	*1926*
Assets				
*Ld mac eq et	$3,050,170	$3,591,453	$4,305,891	$2,513,552
Gdwl & pats	1	1	1	1
Cash	5,986,030	4,126,682	1,815,244	2,128,784
Accts rec etc	772,946	804,828	883,253	350,286
Inventories	2,852,743	1,446,989	1,594,984	1,420,025
Investments	86,508	.....	.....	13,454
Def chgs	484,373	127,218	286,593	193,916
Total	$13,232,771	$10,097,171	$8,885,966	$7,619,018
Liabilities				
Com stk	†$5,569,899	$4,455,880	$4,370,543	$4,370,543
Com stk scrip	1,549	2,047	.....	.....
Accts pay	273,220	220,063	219,156	108, 479
Divs pay	608,499	443,942	435,444	217,722
Accr ac fed tx et	820,471	653,772	583,591	404,733
Conting res	113,720	5,630	53,147	.....
Earned surp	5,845,413	4,315,837	3,224,085	2,517,541
Total	$13,232,771	$10,097,171	$8,885,966	$7,619,018

*After depreciation. †Represented by 2,434,091 no-par shares.

Dow Chemical Co. declares regular quarterly dividends of 50 cents on common and $1.75 on preferred, both payable February 15 to stock of record February 1. New and improved plant equipment has been installed by the company, enabling increasing production of phenol, aniline oil, solvents, plasticisers and a wide range of heavy chemicals.

American Solvents & Chemical Co. declares regular quarterly dividend of 75 cents on preferred, payable February 15 to stock of record February 5.

Texas Gulf Nets $6.39 Per Share

Report of Texas Gulf Sulphur Co., for year ended December 31, 1929, shows net income of $16,247,478, after costs, expenses, federal taxes, etc., equivalent to $6.39 a share on 2,540,000 no-par shares of stock. This compares with $14,517,619, or $5.71 a share, in 1928.

Income account for year 1929 compares as follows:

	1929	*1928*	*1927*	*1926*
Gross inc	$29,883,243	$26,083,612	$22,328,199	$18,152,030
Exp, fed tax, etc	13,635,765	11,565,993	10,228,824	8,768,217
Net inc	$16,247,478	$14,517,619	$12,099,375	$9,383,813
Dividends	10,160,000	10,160,000	10,160,000	7,620,000
Surplus	$6,087,478	$4,357,619	$1,939,375	$1,763,813
Prev surp	15,301,082	10,943,463	9,004,088	7,240,275
*P & L surp	$21,388,560	$15,301,082	$10,943,463	$9,004,088

*Includes depletion reserve.

Balance sheet of Texas Gulf Sulphur Co. as of December 31, 1929, compares as follows:

	1929	*1928*	*1927*	*1926*
Assets				
Land & dev	$10,383,589	$8,173,525	$6,728,749	$2,844,568
Plt, eq, etc	13,270,189	10,769,204	7,421,549	6,272,679
Mat. sup & sulp inv	8,731,960	7,893,947	8,665,879	7,456,555
Cash	5,713,141	4,413,960	4,044,171	5,492,710
Securities	47,000	47,000	32,359	30,859
Accts rec	2,552,685	2,176,397	1,585,290	1,626,000
Notes and accept receivable	405,439	244,275	89,364	65,984
Misc rec & adv	176,307	152,370	87,304	50,636
Def assets	63,306	41,270	34,721	34,564
Total	$41,343,616	$33,911,948	$28,689,386	$23,874,555
Liabilities				
*Cap stock	$6,350,000	$6,350,000	$6,350,000	$6,350,000
Accts pay, etc	1,305,926	601,665	1,180,486	587,891
Depr res, etc	8,467,162	8,467,162	7,940,272	6,619,656
Fed tax & cont res, etc	3,831,968	3,192,039	2,275,165	1,312,919
Surp, incl depl reserve	21,388,560	15,301,082	10,943,463	9,004,089
Total	$41,343,616	$33,911,948	$28,689,386	$23,874,555

*Represented by 2,540,000 no-par shares.

Chemical Profits Above Average

Chemical manufacturing industries show a profit on income of 11.9 per cent as compared to 8.3 per cent for all manufactures, indicating better than average operating profit. The chemical industry in this country ranks fifth in gross income but third in net, being surpassed in the latter only by manufactures of metals and foods. Of the 6,044 chemical companies reporting, 3,609 or 59.7 per cent reported a profit, which compares with 59.8 per cent of all manufacturing industries. Moreover, while the gross income from chemical manufactures was $2,934,313,326 or 5.8 per cent of the total for all industry, the net income was relatively larger, being $348,535,650 or 8.3 per cent. Income tax, the third highest paid, was $40,691,489 out of a total of $480,975,098 or 8.9 per cent of the whole, according to the income tax returns for the calendar year 1928.

Wood Chemical Products Co., Cleveland, reports 1929 earnings of $116,182 on the class B stock, compared with $138,892 earned during the previous year. This is after taxes and other charges as well as after dividends on the class A shares. Company was organized two years ago to take over Florida Wood Products Co., Pensacola Tar & Turpentine Co. and Alabama Wood Products Co. The company is a manufacturer of special pine-tar products used in the rubber trade, and a number of by-products, principally charcoal and flotation oils. Plants are located at Jacksonville Fla., and Mobile and Elberta, Ala.

Virginia-Carolina Chemical Co. declares regular quarterly dividend of $1.75 on prior preferred stock, payable March 1 to stock of record February 14.

J. T. Baker Chemical Co. common stock, totaling 200,000 shares is admitted to unlisted trading privileges on New York Curb Exchange.

U. S. Gypsum Co. plans to increase authorized common stock to 3,000,000 shares from 1,250,000 shares of $20 par.

Freeport Texas Nets $4,085,041 in 1929

Report of Freeport Texas Co. for year ended November 30, 1929, shows net income of $4,085,041 after expenses, reserve for depreciation, taxes, etc., equivalent to $5.60 a share earned on 729,844 no-par shares of stock. This compares with $3,275,576 or $4.49 a share in previous year.

Net profit for quarter ended November 30, 1929, was $1,342,165 after above charges, equal to $1.84 a share, compared with $869,357 or $1.19 a share in preceding quarter and $1,323,182 or $1.81 a share for quarter ended November 30, 1928.

Cash and government bonds, as of January 15 total $6,341,987, comparing with $4,628,930 on November 30, 1929.

Consolidated income account for year ended November 30, 1929, compares as follows:

	1929	*1928*	*1927*	*1926*
Gross sales	$14,778,331	$13,173,860	$13,365,630	$ 9,422,898
Costs & exp.	10,022,940	9,456,566	9,395,526	7,326,696
Oper. profit	$ 4,755,391	$ 3,717,294	$ 3,968,104	$ 2,096,202
Other inc	135,164	118,761	281,513	68,492
Total inc	$ 4,890,555	$ 3,836,055	$ 4,249,617	$ 2,164,694
Tax res.	611,637	369,471	325,780	110,511
Depr. res	193,877	191,008	188,235	245,143
Net income	$ 4,085,041	$ 3,275,576	$ 3,735,602	$ 1,809,040
Dividends	2,919,376	4,743,986	3,101,837	
Surplus	$ 1,165,665	*$ 1,468,410	$ 635,765	$ 1,809,040
P & L surp	6,300,504	5,239,015	6,751,506	6,034,518

*Deficit.

Consolidated balance sheet of Freeport Texas Co. and subsidiaries as of November 30, 1929, compares as follows:

	1929	*1928*	*1927*	*1926*
Assets				
Plt prop etc	$10,103,090	$10,012,812	$10,123,093	$11,041,032
Cash	2,224,618	2,455,880	3,688,866	1,548,880
U. S. Govt. bonds, etc.	2,127,545	1,086,787	1,013,750	
Demand loans	350,000			
Accts and notes rec	1,471,686	1,325,472	1,367,331	1,684,003
Mats & sup	4,036,855	3,848,446	3,375,726	3,875,013
Def. assets	765,496	574,284	689,924	555,672
Total	$21,079,290	$19,303,681	$20,258,690	$18,704,600
Liabilities				
*Cap stock	$ 7,323,022	$ 7,323,022	$ 7,323,022	$ 7,323,022
Accts pay etc	2,390,596	2,280,677	1,893,590	547,012
Meter dep				2,315
Depr. res	4,225,417	3,855,417	3,715,112	3,639,849
Other res	839,750	605,550	575,460	757,884
†Surplus	6,300,505	5,239,015	6,751,506	6,034,518
Total	$21,079,290	$19,303,681	$20,258,690	18,704,6

*Represented by 729,844 no-par shaes.
†Includes depletion reserve.

International Salt's Income Higher

International Salt Co. and subsidiaries report for year ended December 31, 1929, net income of $687,809 after interest, federal taxes, depreciation and depletion, equivalent to $11.32 a share (par $100) on 60,771 shares of stock. This compares with $439,595 or $7.23 a share in 1928.

Current assets on December 31, 1929, amounted to $2,201,404 and current liabilities $234,272, comparing with $1,601,346 and $144,442, respectively, on December 31, 1928.

Profit for six months ended December 31, 1929, was $448,398 after expenses, fixed charges and sinking fund, but before federal taxes, comparing with $344,477 in corresponding period of 1928.

Hercules Powder Co. reports for year ended December 31, 1929, net income of $4,358,904 after depreciation, federal taxes, etc., equivalent after 7% preferred dividends, to $5.95 a share on 598,000 no-par shares of common stock. This compares with net income in 1928, of $4,038,980, equal after preferred dividends to $22.04 a share on 147,000 common shares of $100 par then outstanding.

International Agricultural Chemical Corp. declares regular quarterly dividend of $1.75 on preferred, payable March 1 to stock of record February 15. Charles J. Cottee has been elected treasurer and secretary, A. C. Edwards was elected assistant treasurer and assistant secretary and Robert P. Resch, elected controller and assistant secretary. Other officers were reelected.

The Industry's Stocks

1930 Jan. High	1930 Jan. Low	1929 High	1929 Low	1928 High	1928 Low	Sales In Jan.	Sales During 1929	ISSUES	Par $	Shares Listed	An. Rate	Earnings $-per share-$ 1929-1928	Earnings $-per share-$ 1927
								NEW YORK STOCK EXCHANGE					
131¼	118	223¾	77	99¾	59	163,000	2,429,400	Air Reduction	No	770,000	$3.00	9 mo. 5.63	4.61
280	255¾	354¾	197	252¾	146	27,200	973,020	Allied Chem. & Dye	No	2,178,000	6.00	1928 11.12	10.03
122	121	125	118½	...	...	1,400	43,800	7% pfd.	100	392,849	7%	1928 68.63	62.59
7¼	7	23¾	4	26	15¾	7,700	203,900	Am. Agricultural Chem.	100	333,221	...	... ...	1.59
32¾	27¼	73¾	18	79¾	55¾	9,500	104,400	pfd.	100	284,552	...	... 2.47	7.86
131¾	117½	184½	86	117½	70½	931,500	6,108,400	American Can	25	2,473,998	4.00	1928 6.86	4.11
144	140½	145	133¼	147	136¾	1,500	46,900	pfd.	100	412,333	7%	1928 48.17	31.66
33	26¾	55	20	87¼	74	98,400	505,300	Amer. Com. Alc.	No	382,000	1.60	9 mo. 2.59	3.39
48¾	44	81¾	31½	63¾	39	28,200	2,214,300	American Metal, Ltd.	No	868,000	3.00	9 mo. 2.60	3.58
112½	112	135	106	117½	109	100	33,800	pfd	100	69,000	6%	9 mo. 37.30	26.52
76¾	69¾	130¼	62	293	169	111,550	4,139,600	American Smelt. & Refin.	No	1,830,000	4.00	6 mo. 5.03	8.24
138	135	138	123½	142	131	3,100	45,600	pfd.	100	500,000	7%	6 mo. 21.90	37.17
17	8½	49½	7	57	6¾	134,150	740,400	Amer. Zinc & Lead	25	200,000	...	9 mo. 1.80	...
79¼	56	111½	49¾	117¾	40	10,900	91,600	pfd.	25	96,560	6.00	9 mo. 8.12	...
79¼	69¼	140	67½	120¼	53¾	1,161,600	33,496,525	Anaconda Copper Mining	50	8,828,000	7.00	1928 6.63	3.37
27¾	24½	49½	18½	112¾	55½	15,500	555,000	Archer Dan. Mid.	No	550,000	2.00	9 mo. 2.45	4.02
105	105	...	...	...	...	10	2,120	pfd.	100	41,000	7%	9 mo. 22.10	46.94
90½	81½	140	67	114	63	9,800	303,300	Atlas Powder Co.	No	261,438	4.00	9 mo. 6.29	4.39
104¼	101	106½	90	110¾	102	630	7,210	pfd.	100	90,000	6%	9 mo. 22.77	18.76
39½	36¼	77¾	30	66½	50	114,700	6,943,500	Atlantic Refining	25	2,678,000	1.00	6 mo. 3.06	7.72
3¾	3	9½	2	12¾	4¼	13,100	433,400	Butte Copper & Zinc	5	600,000	...	9 mo. 0.27	0.31
5½	4½	12¾	4¼	16¾	8½	11,300	162,900	Butte Superior Mng.	10	290,198	2.00	9 mo. 0.13	0.28
1½	1	4	...	5¾	1¾	23,700	283,600	Calla Lead & Zinc	10	724,592	...	9 mo. nil	...
33¾	29	61¾	25	47¾	20½	41,700	2,548,100	Calumet & Hecla	25	2,001,000	6.00	9 mo. 2.08	1.55
13¾	11	32	10¾	119	61½	22,000	362,300	Certainteed Prod.	No	400,000	...	... nil	...
...	...	81½	45½	63½	23¾		11,100	7% pfd.	100	62,904	7%	9 mo. d11.38	d6.77
...	...	127½	53	74¼	37¾		1,335,200	Chile Copper	25	4,415,497	3.50	6 mo. 3.32	4.52
194½	168¼	344	105	134¾	79	126,100	924,700	Columb Carbon	No	457,000	4.00	9 mo. 6.31	6.39
31¾	27¼	63	20¼	250¼	137¾	421,550	2,691,400	Commercial Solvents	No	2,435,000	1.00	9 mo. 1.24	13.20
56½	50¼	92	40¾	64¾	53	152,800	4,184,400	Cont. Can	No	1,725,000	2.50	1928 4.35	7.55
95¾	87½	126¾	70	94	64¾	69,400	2,326,200	Corn Products	25	2,530,000	3.00	9 mo. 3.78	4.35
142½	140½	144¾	137	146¾	138½	1,530	33,550	pfd.	100	250,000	7%	9 mo. 43.48	50.98
34¼	28¾	69¼	21½	68¾	34¾	30,400	1,594,400	Davison Chem.	No	504,000	...	... 3.34	1.58
35	30½	64¼	24	61	40	9,600	195,200	Devoe & Rayn A	No	160,000	2.40	6 mo. †2.87	†5.95
111	106½	115½	102	120	108	110	3,040	1st pfd.	100	16,000	7%	6 mo. 31.54	64.02
117½	115	119½	107½	121½	114	3,700	95,500	Dupont deb.	100	978,000	6%	9 mo. 62.43	69.06
125	112¼	231	80	503	310	100,250	2,317,900	Dupont de Nemours	20	10,339,000	4.00	1929 7.09	5.97
194¾	175¾	264¾	150	194½	163	32,135	1,031,700	Eastman Kodak	No	2,263,000	5.00	1928 9.60	9.61
...	...	128	117	132¼	123½		3,640	pfd.	100	61,657	6%	1928 326.17	326.68
190	185	310	170	230	120	450	9,600	Fed. Mining & Smelting	100	50,400	...	9 mo. 41.53	24.15
44	38¾	94¾	42¼	109¾	43	150,500	998,700	Freeport Texas	No	729,844	4.00	9 mo. 3.76	4.49
53½	49¼	...	...	94¼	141¾	42,700	1,135,200	General Asphalt	No	411,000	4.00	6 mo. 1.41	2.79
34½	31	64½	2o	37	20¾	41,300	1,518,400	Glidden Co.	No	682,000	2.00	9 mo. 2.79	3.55
102	98½	106¼	95	105	95	340	10,170	prior pfd.	100	74,000	7%	9 mo. 26.46	32.69
45½	37¾	82	31½	143½	71	527,000	6,299,300	Gold Dust	No	1,778,000	2.50	1928 1.33	0.82
...	...	...	...	380	192		4,470	Hercules Powder	No	567,000	3.00	9 mo. 4.41	22.04
118¼	117	...	...	125	118½	200	1,280	pfd.	100	114,241	7%	9 mo. 28.33	35.35
55½	52½	79½	40	84	64½	10,200	181,200	Household Prod.	No	575,000	3.50	6 mo. 2.64	5.22
7½	4½	17¼	4	20½	13	28,900	221,000	Intern. Agri.	No	444,000	...	... 0.79	1.66
57	56	88½	40	85	48¾	600	27,400	pfd.	100	100,000	7%	... 10.54	14.47
38¾	31¾	72½	25	46	41¼	1,010,600	16,071,600	Intern. Nickel	No	13,779,000	1.00	9 mo. 1.12	1.05
51¼	46½	68¾	40	60	47¾	2,610	163,300	Int. Print Ink	No	273,000	3.00	6 mo. 3.55	2.96
77	69	90	55½	69	49¾	1,900	76,140	Intern. Salt	100	60,771	...	6 mo. 3.80	7.23
143	117	123	118	202	96½	275,300	3,509,500	Johns-Manville	No	750,000	3.00	9 mo. 6.84	6.75
61	52¾	113¾	40½	124¼	63¾	78,700	754,600	Liquid Carbonic Corp.	No	311,000	4.00	... 6.12	8.11
31½	30	46	30	57½	45	1,300	74,000	Mac &Forbes	No	384,000	2.60	9 mo. 2.21	3.30
43¾	37½	72¾	29	190	117¾	63,700	968,880	Mathieson Alk	No	637,000	2.00	9 mo. 2.67	4.35
119	115	125	120	130	115	20	3,570	pfd	100	28,000	7%	9 mo. 60.95	84.50
31¾	26¾	54½	20	33	17¾	73,500	1,758,300	Miami Copper	5	747,116	4.00	1928 1.96	1.53
60	49	80½	47	...	...	11,500	5,025	Monsanto Chem.	No	398,000	1.25	9 mo. 4.44	3.04
37¾	29	58	15	58¼	29½	40,800	1,042,500	National Dist. Prod.	No	168,000	...	10 mo. 1.83	...
171	137	210	129¼	136	115	4,500	271,840	National Lead	100	309,831	5.00	1928 11.45	8.40
58½	51	103	43	...	...	1,300	161,600	Newport Co."A"	50	130,000	3.00	9 mo. 9.03	5.55
33¾	26¼	60¾	22	41¼	22¾	29,700	730,200	Penick & Ford	No	433,773	...	9 mo. 2.96	3.15
251	230	404	208	217	157	4,300	195,400	Peoples Gas Chi.	100	566,000	8%	.. 11.67	11.92
23	21	45	20	9¼	6½	6,100	2,278,900	Spencer Kellogg	No	500,000	1.60	.. 3.59	2.37
55¾	48½	94	38½	71½	37	67,900	721,800	St Joseph Lead	10	1,952,000	2.00	6 mo. 2.22	2.30
66¼	62	83	48	59¾	37¾	352,000	14,184,700	Standard Oil Co. of N. J.	25	25,480,000	1.00	1928 4.43	1.52
33½	32	48¾	31¾	45¼	28¾	171,800	7,268,700	Standard Oil Co. of N. Y.	25	17,364,000	1.60	1928 2.28	0.67
14½	13	20¾	9½	19¾	10¾	14,300	1,141,600	Tenn. Cop. & Chem.	No	857,000	1.00	1928 1.48	0.51
62¾	54¾	85¼	42¾	82¾	62¼	178,400	4,188,000	Texas Gulf Sulfur	No	2,540,000	4.00	9 mo. 4.52	5.72
90¾	76	140	59	209	186¼	575,300	6,461,500	Union Carbide	No	9,208,000	2.40	9 mo. 2.89	3.71
139¾	110¼	243¾	95	138	102¼	223,000	2,274,500	U. S. Ind. Alc.	No	373,000	6.00	6 mo. 5.30	10.29
...	...	...	...	125¾	118¾		860	pfd.	100	60,000	...	... ...	36.03
69¾	49¾	116½	37½	111¼	60	154,500	1,935,200	Vanadium Corp.	No	379,000	3.00	6 mo. 3.13	4.53
7¾	5¼	24¾	3¼	20¾	12	18,700	660,800	Virginia Car. com.	No	479,000	...	... ...	0.69
30¼	26½	65½	15	64¼	44¾	4,800	166,220	6% pfd.	100	214,000	...	... 3.06	7.57
80	78	97½	69	99½	88½	800	29,720	7% pfd.	100	144,000	7%	... 12.35	20.06
								NEW YORK CURB					
9¼	8	23	6	31½	16½	1,800	42,200	Acetol Prod.	No	60,000	...	1928 2.27	...
24¼	21	43½	15	42¾	33¼	4,200	61,100	Agfa Ansco	No	300,000	...	... ...	...
303	275	539½	146	197¾	120	3,175	113,250	Aluminum Co. of America	No	1,472,625	...	1928 8.03	5.00
108½	106½	110	103	110½	104	4,100	40,500	pfd.	100	1,472,625	6%	1928 14.04	10.26
29¾	25½	69½	20½	65	30¾	151,500	2,319,175	Amer. Cyan. "B"	No	1,260,000	1.60	... 1.56	†3.68
12	10	40¾	40¼	28½	11¾	2,400	176,900	Amer. Sol. & Chem. com	No	181,000	...	1928 1.83	...
27	24¼	42½	25⅛	47¼	25½	2,300	89,500	pfd.	No	113,000	3.00	1928 5.93	...
22	15¼	45¾	15	54	26¼	5,700	193,900	Anglo Chile Nitrate	No	1,756,750	...	... ...	2.81
4¼	3¼	10¾	3¼	33¾	7	5,600	153,100	Br. Celanese	10S	2,200,000	...	... ...	...
...	...	...	...	46½	41		1,400	Canad. Ind. Alc.	No	969,000	1.52	... 1.90	2.87
35	29	57½	20	103	36½	8,200	156,800	Celanese Corp. of Am	No	1,000,000	...	1928 0.67	1.72
17½	14	50	12	122	34	4,400	18,700	Celluloid Co.	No	194,952	...	1928 1.29	0.86
53¾	52	90	40	92	75	3,900	134,100	Colgate-Palmolive Peet	No	2,000,000	2.50	1928 2.65	2.10
13½	13	25½	12	...	...	1,200	52,100	Courtaulds	£1	24,000,000		1928 19.88%	34.88%
23	21½	...	...	23	7¼	700	18,800	Heyden Chem.	10	150,000	...	1928 2.02	1.02
6½	6¼	...	...	...	...	500	5,800	Imperial Chem. Ind.	£1	3,364,000	...	1928 12.15%	10.23%
16	12	27	13½	98	38½	300	2,500	Monroe Chem.	No	100,000	1.50	11 mo. 2.93	...
...	...	...	...	...	...		700	Penn Salt	50	150,000	5.00	... 10.64	8.27
8¼	7¼	10¾	6¼	9¾	6½	1,500	56,000	Pyrene Mfg.	10	219,470	.80	1928 1.00	0.70

1930 Jan. High	1930 Jan. Low	1929 High	1929 Low	1928 High	1928 Low	Sales In Jan.	Sales During 1929	ISSUES	Par $	Shares Listed	An. Rate	Earnings $-per share-$ 1929-1928		1927
...	...	...	...	...	...		7,550	Sherwin Williams	25	594,445	4.00	...	7.85	6.99
26½	18	48¼	14¾	111½	103	21,600	567,700	Silica Gel	No	600,000	...	...	...	...
2	½2	5¾	1¼	92	65½	100	5,800	Snia Viscosa	200 lire	8,333,333	...	1928	7.22%	2.01%
...	...	...	...	29	17		1,900	dep-recpts	...	...	...	...	...	...
136¾	130	149⅞	121½	10	5¼	600	51,550	Swift & Co.	100	1,500,000	8%	...	9.87	8.13
178½	140½	550	111	42	31½	4,590	30,755	Tubize "B"	No	78,858	10.00	...	...	...
35½	32	61½	25½	150½	125	9,600	98,800	United Chem., pfd.	50	120,000	3.00	...	...	...
23	15	...	...	630	450	700	152,440	com.	No	122,000	...	...	...	...
46	42	91⅛	36½	100	53⅛	2,300	291,990	U. S. Gypsum	20	765,000	1.60	6 mo.	2.69	7.21
...	...	...	...	...	...		21,550	Westvaco Chlorine Prod.	No	200,000	2.00	...	1.60	...
								CLEVELAND						
135	119	98¾	92	147½	104	715	24,746	Cleve-Cliff Iron	No	498,000	5.00	1928	8.41	3.80
75	73	80	60	225	112½	773	3,200	Dow Chem.	No	1,000,000	6.00	...	...	...
...	...	...	...	107	103½		1,115	pfd.	100	30,000	7%	...	...	...
32½	32½	...	...	...	...	600		Glidden	No	500,000	2.00	...	3.37	2.88
100	100	...	...	104½	96	146	2,965	prior pfd.	100	69,167	7%	9 mo.	26.46	32.69
85	80	105	75	95	65½	1,522	21,413	Sherwin Williams	25	594,445	4.00	...	7.85	6.99
107	105	108	103	109½	106	486	7,034	pfd.	100	125,000	6%	...	39.21	37.82
...	...	...	...	28	24½		2,957	Wood Chemical Prod. "A"	No	20,000	2.00			7.75
								CHICAGO						
15	14	26½	12	96	91½	620	23,250	Monroe Chem.	No	100,000	1.50	11 mo.	2.93	0.76
...	...	...	...	146	127½		7,572	Monsanto Chem.	No	311,000	1.25	6 mo.	5.13	7.52
137	130	145	123	...	..	7,400	108,950	Swift & Co.	100	1,500,000	8%	1928	2.47	2.03
46½	39¾	92½	35	...	...	22,200	503,950	U. S. Gypsum	20	812,000	1.60	6 mo.	2.69	7.21
...	...			100	55			United Chemicals, pfd.	No	120,000	3.00	6 mo.	2.61	
								CINCINNATI						
69	53½	100	44¾	300	249	7,278	21,954	Proc. & Gam.	20	1,250,000	8.00		11.96	11.38
								PHILADELPHIA						
100	94	...	...	109½	92	600	42,700	Penn. Salt	50	150,000	5.00		10.64	8.27
37¾	31¾	59¾	26	173½	114½	184,800	3,720,328	United Gas Imp.	No	3,999,000	1.20		1.39	1.11
								MONTREAL						
3	2½	...	...	...	...	1,460	43,538	Asbestos Corp	No	200,000	...			0.87
12	10	...	...	...	...	129	12,401	pfd.	100	75,000	7%	1928	3.36	9.32
12¼	10	...	...	..	...	9,465	258,028	Canada Ind. Alc.	No	969,000	1.52		1.90	2.87
81	77½	...	...	...	...	27,357	723,049	Shawinigan W. & P.	No	2,178,000	2.00	1928	2.17	2.41
								UNLISTED						
...	...	...	...	80	70			Agfa Ansco, pfd.	100	50,500	...			...
...	...	...	...	375	190			Hercules Powd., com.	No	147,000	14%	6 mo.	15.10	16.36
75	70	...	...	82	64			Merck. & Co., pfd.	100	33,950	...	...	...	...

The Industry's Bonds

1930 Jan. High	1930 Jan. Low	1929 High	1929 Low	1928 High	1928 Low	Sales In Jan.	Sales During 1929	ISSUE	Date Due	Int. %	Int. Period	Orig. (1) Offering $
								NEW YORK STOCK EXCHANGE				
103½	103	106½	103	106¾	104	74	1,228	Am. Agri Chem.	1941	7½	F. A.	30,00
97½	96	99¾	93¼	97	92	55	1,424	Amer. Cyanid	1942	5	A. O.	...
103½	100	135	95	...	..	1,367	5,507	Amer. I. G. Chem.				...
161¾	100½	102¾	98	102¾	99¾	361	49,090	Am. Smelt & Refin "A" 5%	1947	5	A. O.	...
86	83½	100	79	105½	92	89	2,889	Anglo Chilean	1945	7	M. N.	16,500
101½	100	103½	99¾	103¾	99¾	106	2,418	Atlantic Refin.	1937	5	J. J.	15,000
102½	101	103	98½	103½	100	37	438	By product Coke	1945	5½	M. N.	8,000
102	98½	103	96½	103⅜	100	8	494	Corn Product Refin.	1934	5	M. N.	10,000
...	...	...	...	117	106		1,003	General Asphalt	1939	6	A. O.	5,000
...	...	95	90½	95⅜	89½		311	Int. Agric. Corp.	1932	5	M. N.	30,000
72½	72¼	81½	72	86¼	77	6	180	Int. Agri. Corp. stamped extended	1942	5	M. N.	7,020
82	74	104	76	...	...	318	3,774	Lautaro Nitrate				
103¾	101½	127	99	...	...	97	1,696	Montecatini	1937	7	J. J.	...
96½	95	99¼	98	...	...	196	1,809	Ex War.	1937	7	J. J.	...
...	...	113	110	...	...		93	People's Gas & Coke	1943	6	A. O.	10,000
103	101	105½	100½	108½	102	65	819	Refunding	1947	5	M. S.	40,000
102¾	100¾	103½	100	104	102½	543	9,208	Standard Oil N. J.	1946	5	F. A.	120,000
99½	97½	110	88	120	101	78	1,406	Tenn. Cop. and Chem.	1941	6	A. O.	3,000
70	70	82	68⅞	91⅞	82	3	213	Va. Iron C. & C.	1949	5	M. S	
								NEW YORK CURB				
102½	101¾	103½	99¾	103½	100	249	694	Alum. Co. of Am 52	1952	5	M. S.	
...	...	...	...	121½	98		2,354	Amer. Com. Alc.	1943	5	M. N.	
99	95	125	99	125	99	11	1,658	Amer. Solv. & Chem.	1936	6	M. S.	
96¾	95¾	100½	93	101¾	97½	339	3,049	Koppers Gas and Coke	1947	5	J. D.	25,000
...	...	...	...	103½	98		343	Natl. Dist. Prod.	1935	6½	J. D. 15	3,500
93	92	99¾	88½	98⅞	93½	84	1,693	Shawinigan W & P	1967	4½	A. O.	...
99	97	...	...	106¾	100	33	696	Silica Gel. 6½% with warr.	1952	6½		...
...	...	...	...	100	95		2,616	Solvay Am. Invest. Corp.	1942	5	M. S.	15,00
100½	100	102	98	101½	99¾	238	1,234	Swift & Co.	1932	5	A. O.	50,00
103¼	102½	104	98	104	99½	65	487	Westvaco Chlorine Prod.	1937	5½	M. S.	2,50

The Trend of Prices

Industrial Activity Opens Year at Low Ebb But Shows Tend Upward

Chemical Business Shows Decided Recovery from Low Point Reached at End of Last Year—First Two Weeks of January Quiet, But Decided Recovery Features Closing Weeks—Methanol Lower in Attempt to Stabilize Prices—Benzol Down—Alcohol Unsteady.

Industrial activity generally declined further during December, remained at a low ebb during the opening weeks of January, and then began a decidedly upward trend. There was little change in commodity prices during this period and conditions in the money market remained easy.

Industrial production, as measured by the Federal Reserve Board's index, which is adjusted for seasonal variations, declined by 6 per cent in December, following upon a decline of 9 per cent for the preceding month. Nearly all industries reported larger than seasonal reductions in December, except the food industries, which showed little change, and coal, in which output increased.

The largest declines in December, as in earlier months, were in automobiles and iron and steel. Production in the textile, shoe, lumber, and the nonferrous metals industries also decreased considerably. Stocks of cotton textiles, copper, zinc, and lumber increased in December.

In the first three weeks in January, steel plants increased their operations somewhat from the low rate prevailing at the holiday season, but were considerably less active than in January, 1928, or 1929. There were further decreases in the output of copper and lumber, while production of crude petroleum increased.

Employment in factories in December declined more than the usual amount in the automobile, steel, textile, clothing, and lumber industries. Little change was reported for the food industries and car-repair shops, while at meat-packing plants and in the paper and printing industries there was some increase in employment.

Building contract awards also declined further in December. Residential contracts continued to be in small volume and there were large decreases in awards for commercial buildings and public works and utilities. During the first half of January awards were larger on a daily average basis than in December.

Freight-car loadings in December, as in the preceding month, showed more than the usual seasonal decline. The decline occurred principally in shipments of merchandise and of lumber products, while loadings of coal and grain were larger than in November.

During December, wholesale prices of commodities fluctuated rather narrowly. Grain, livestock, meat, and bituminous coal prices increased somewhat, while prices of hides and leather products, textiles, petroleum, and pig iron declined. In the first half of January there was little further change in prices.

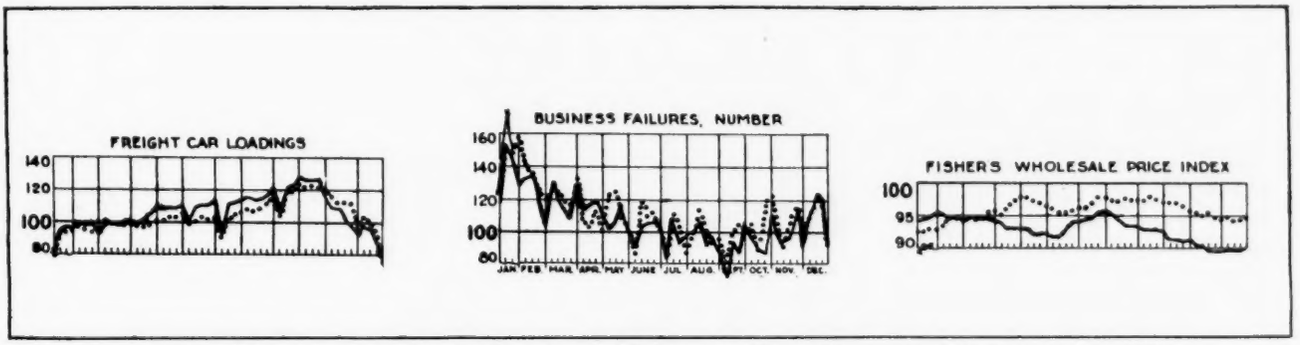
Member bank credit increased less than usual over the year-end and in January continued to reflect the liquidation which began early in November. On January 15, total loans and investments of member banks in leading cities were $478,000,000 below the level of December 11, 1929. This decline occurred both at banks in New York City and outside and was in "all other loans," apparently reflecting a seasonal decrease in interbank loans, together with a decreased demand for credit by commercial borrowers. Investments and loans on securities increased slightly during the period.

Reserve bank credit outstanding increased during the latter half of December in response to seasonal demands for currency and gold exports, but declined in January as currency returned from circulation. Between the week ended December 14 and the week ended January 18, there was a net decline of $277,000,000 in currency in circulation, and also a decline of $37,000,000 in member bank reserve balances.

Money rates in the short-term open markets firmed somewhat over the year-end but eased early in January, and throughout the first half of the month remained generally at the lowest levels since the Spring of 1928.

In the chemical markets, January showed a large recovery from the inactivity featuring December. In most cases this recovery did not set in until about the middle of the month, so that January does not quite measure up to the same month a year ago, although it was better than January 1928. Judging by the alkalis, the revival of industrial activity is quite general, as was the preceding slump, since all industries have returned to the market for alkalis.

The month was further notable for complete revision on methanol prices, which brings a greater degree of stability into that market. Benzol, toluol and xylol were also subject to price reductions, while conditions in the alcohol market are far from satisfactory, due chiefly to this winter's lack of demand for antifreeze purposes.



Business indicators prepared by the Department of Commerce. The weekly average 1923-35 inclusive = 100. The solid line represents 1929 and the dotted line 1928.

Prices Current

Heavy Chemicals, Coaltar Products, Dye-and-Tanstuffs, Colors and Pigments, Fillers and Sizes, Fertilizer and Insecticide Materials, Naval Stores, Fatty Oils, etc.

Chemical prices quoted are of American manufacturers for spot New York, immediate shipment, unless otherwise specified. Products sold f. o. b. works are specified as such. Imported chemicals are so designated. Resale stocks when a market factor are quoted in addition to makers' prices and indicated "second hands."

Oils are quoted spot New York, ex-dock. Quotations f.o.b. mills, or for spot goods at the Pacific Coast are so designated.

Raw materials are quoted New York, f. o. b., or ex-dock. Materials sold f. o. b. works or delivered are so designated.

The current range is not "bid and asked," but are prices from different sellers, based on varying grades or quantities or both. Containers named are the original packages most commonly used.

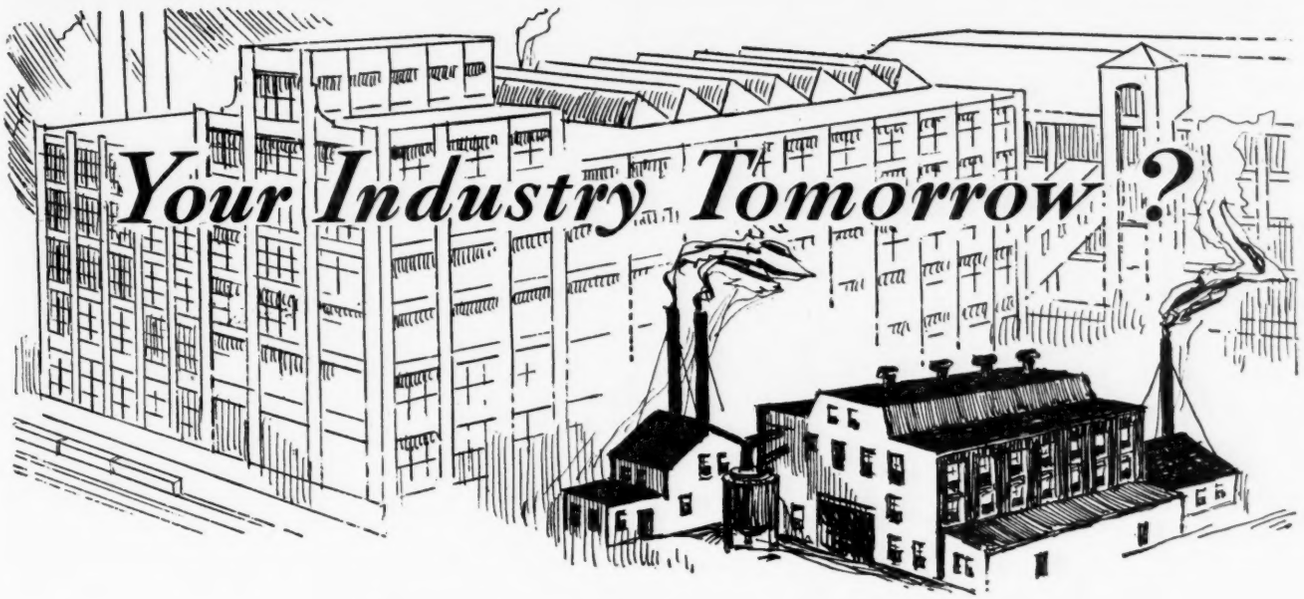
Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Jan. 1930 $1.072

Acetone—After a very quiet two weeks at the first half of the past month, the movement of this material assumed a very active turn for the better. In some quarters it is reported that the movement has been even better than it was for January of last year, but at any rate business has shown a tremendous improvement over December. At one time early in the past month, it was also reported that some business was being done below the basic prices quoted, but at any rate, the market at the close of the month was quite firm at quoted prices. The heavy buying movement which developed during the past month was undoubtedly due in large measure to the fact that consumers entered the new year with practically no stocks. Every effort had been made during December to keep inventories as low as possible and consequently, once the inventory period was over, all of them came into the market for material. Buying is not confined to any one industry but is spread throughout all and it merely remains to be seen whether this activity will continue or whether it was merely, a temporary condition due to the inventory situation.

Acid Acetic—Has been in much better supply during the past month than for some time previously, due chiefly to the fact that calcium acetate is also in that condition. In some quarters it is reported that there is plenty of lime due to the fact that this is the season of heavy production and to the fact that considerable supplies of this material were imported at the end of last year, and that this latter is still on the market in considerable quantity. On the other hand, it is said that the imported material available is but an extremely small fraction of the whole, so small, in fact, that it can have no influence upon the market. Furthermore, it is pointed out that stocks as of February 1 are not so heavy, when the fact that the annual shutdown is not far distant. But for the present, at any rate, acetic acid has been in quite liberal supply, with increasing quantities of the synthetic material in evidence.

Acid Boric—Both domestic and export demand continues in good volume. Exports during the first eleven months of 1929 totaled 5,115,873 pounds, as compared

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
.21	.18½	.26	.18½	Acetaldehyde, drs 1c-1 wks...lb.	.18½	.21	.21	.18½
.31	.27			Acetaldol, 50 gal dr.....lb.	.27	.31	.31	.27
.24	.21	.24	.23	Acetanilid, tech, 150 lb bbl...lb.	.21	.23	.23	.21
.35	.28	.35	.29	Acetic Anhydride, 92-95%, 100 lb cbys.....lb.	.28	.29	.29	.28
.32	.30	.....	.....	Acetin, tech drums.....lb.	.30	.32	.32	.30
.16	.11	.15	.13	Acetone.....lb.	.11	.12	.12	.11
1.25	1.15	1.75	1.65	Acetone Oil, bbls NY.....gal.	1.15	1.25	1.25	1.15
.68	.45	.45	.42	Acetyl Chloride, 100 lb cby...lb.	.55	.68	.68	.55
				Acetylene Tetrachloride (see tetrachlorethane).....				
				Acids				
3.88	3.88	3.88	3.38	Acid Acetic, 28% 400 lb bbls c-1 wks.....100 lb.	.....	3.88	3.88	3.88
13.68	13.68	13.68	11.92	Glacial, bbl c-1 wk.....100 lb.	.....	13.68	13.68	13.68
1.00	.98	1.00	.98	Anthranilic, refd, bbls.....lb.	.98	1.00	1.00	.98
.80	.80	.80	.80	Technical, bbls.....lb.	.....	.80	.80	.80
2.25	1.60	2.25	1.60	Battery, cbys.....100 lb.	1.60	2.25	2.25	1.60
.60	.51	.60	.57	Benzoic, tech, 100 lb bbls....lb.	.51	.53	.53	.51
.07¾	.05¾	.11	.08¾	Boric, crys. powd, 250 lb bbls.....lb.	.06¾	.07¾	.07¾	.06¾
1.25	1.25	1.25	1.25	Broenner's, bbls.....lb.	.....	1.25	1.25	1.25
.90	.85	.90	.85	Butyric, 100% basis cbys.....lb.	.85	.90	.90	.85
5.25	4.85	4.85	4.85	Camphoric.....lb.	.....	5.25	5.25	5.25
.05½	.04½	.16	.15	Chlorosulfonic, 1500 lb drums wks.....lb.	.04½	.05½	.05½	.04½
.23	.17½	.30	.25	Chromic, 99%, drs extra.....lb.	.17½	.19	.19	.17½
1.06	1.00	1.06	1.00	Chromotropic, 300 lb bbls....lb.	1.00	1.06	1.06	1.00
.70	.46	.44½	.59	Citric, USP, crystals, 230 lb bbls.....lb.	.46	.59	.59	.46
.59	.52	.97	.95	Cleve's, 250 lb bbls.....lb.	.52	.54	.54	.52
.54	.60	.70	.68	Cresylic, 95%, dark drs NY..gal.	.60	.70	.70	.60
.77	.72	.72	.72	97-99%, pale drs NY.....gal.	.72	.77	.77	.72
.12	.10½	.12	.11	Formic, tech 90%, 140 lb cby.....lb.	.10½	.12	.12	.10½
.12	.50	.55	.50	Gallic, tech, bbls.....lb.	.50	.55	.55	.50
.55	.74	.74	.74	USP, bbls.....lb.	.....	.74	.74	.74
.80	.74	1.06	1.00	Gamma, 225 lb bbls wks.....lb.	.77	.80	.80	.77
.99	.80	.63	.57	H, 225 lb bbls wks.....lb.	.65	.70	.70	.65
.72	.67	.67	.67	Hydriodic, USP, 10% soln cby lb.	.....	.67	.67	.67
.67				Hydrobromic, 48%, coml, 155 lb cbys wks.....lb.	.45	.48	.48	.45
.48	.45	.48	.45	Hydrochloric, CP, see Acid Muriatic.....				
.....	.....			Hydrocyanic, cylinders wks...lb.	.80	.90	.90	.80
.90	.80	.90	.80	Hydrofluoric, 30%, 400 lb bbls wks.....lb.	.....	.06	.06	.06
.06	.06	.06	.06	Hydrofluosilicic, 35%, 400 lb bbls wks.....lb.	.....	.11	.11	.11
.11	.11	.11	.11	Hypophosphorous, 30%, USP, demijohns.....lb.	.....	.85	.85	.85
.85	.85	.85	.85	Lactic, 22%, dark, 500 lb bbls lb.	.04½	.05	.05	.04½
.05½	.04½	.06	.04½	44%, light, 500 lb bbls.....lb.	.11	.11½	.11½	.11
.12½	.11	.13½	.12	Laurent's, 250 lb bbls.....lb.	.40	.42	.42	.40
.42	.40	.54	.52	Malic, powd., kegs.....lb.	.48	.60	.60	.48
.60	.48	.60	.48	Metanilic, 250 lb bbls.....lb.	.60	.65	.65	.60
.65	.60	.65	.60	Mixed Sulfuric-Nitric.....				
.07½	.07	.08	.07½	tanks wks.....N unit	.07	.07½	.07½	.07
.01	.008	.01½	.01	tanks wks.....S unit	.008	.01	.01	.008
.21	.18	.21	.18	Monochloroacetic, tech bbl..lb.	.18	.21	.21	.18
1.70	1.65	.65	.65	Monosulfonic, bbls.....lb.	1.65	1.70	1.70	1.65
1.40	1.35	1.40	1.35	Muriatic, 18 deg, 120 lb cbys c-1 wks.....100 lb.	.....	1.35	1.35	1.35
1.00	1.00			tanks, wks. 100 lb.		1.00	1.00	1.00
....	1.45	1.80	1.70	20 degrees, cbys wks...100 lb.	.....	1.45	....	1.45
.95	.85	.95	.85	N & W, 250 lb bbls.....	.85	.95	.95	.85
.59	.55	.59	.55	Naphthionic, tech, 250 lb.....	.....	Nom.	Nom.	.....
5.00	5.00	5.00	5.00	Nitric, 36 deg, 135 lb cbys c-wks.....100 lb.	.....	5.00	5.00	5.00
6.00	6.00	6 00	6.00	40 deg, 135 lb cbys, c-1 wks.....100 lb.	.....	6.00	6.00	6.00
.11¾	.11	.11½	.10¾	Oxalic, 300 lb bbls wks NY...lb.	.11½	.11¾	.11¾	.11½
.14	.08	.08¾	.08	Phosphoric 50%, U. S. P.....lb.	.....	.14	.14	.14
.16	.14	.16	.16	Syrupy, USP, 70 lb drs....lb.	.....	.14	.14	.14
.70	.65	.50	.50	Picramic, 300 lb bbls.....lb.	.65	.70	.70	.65
.50	.30	.50	.40	Picric, kegs.....lb.	.30	.50	.50	.30
1.40	.86	.86	.86	Pyrogalic, crystals..... .....lb.	1.30	1.40	1.40	1.30
.42	.33	.32	.27	Salicylic, tech, 125 lb bbl.....lb.	.33	.37	.37	.33
.16	.15	.16	.15	Sulfanilic, 250 lb bbls.....lb.	.15	.16	.16	.15
1.95	1.60	1.95	1.60	Sulfuric, 66 deg, 180 lb cbys 1c-1 wks.....100 lb.	1.60	1.95	1.95	1.60
15.50	15.50			tanks, wks. ton		15.50	15.50	15.50
1.65	1.50	1.37½	1.20	1500 lb dr wks.....100 lb.	1.50	1.65	1.65	1.50
1.42½	1.27½	1.12½	1.12½	60°, 1500 lb dr wks....100 lb.	1.27½	1.42½	1.42½	1.27½
18.50	18.50	18.50	18.50	Oleum, 20%, 1500 lb. drs 1c-1 wks .....ton	.....	18.50	18.50	18.50
42.00	42.00	42 00	42.00	40%, 1c-1 wks net .....ton	.....	42.00	42.00	42.00



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Organic Chemicals Division

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Wilmington, Delaware

Organic Chemicals

Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Jan. 1930 $1.072

with 3,188,487 pounds in the corresponding period of 1928.

Acid Formic—Has been in rather poor condition due to the fact that tannery operations are not as yet proceeding in normal fashion. Imports of this material are falling off as is shown by the figures for the first eleven months of 1929, which show imports of 1,348,878 pounds, as compared with 1,942,940 pounds in the corresponding period of 1928.

Acid Muriatic—In common with the other members of the mineral acid group, demand continues in steady fashion for this material, especially from the metallurgical industries.

Acid Oxalic—Demand for this material continues in good volume for this season of the year and the market seems definitely established upon a steady basis. As indicative of the large quantities of imported material which was brought in to supplement domestic production during the late summer and early fall months, imports for eleven months of 1929 amounted to 816,503 pounds, as compared with 829,208 pounds in the corresponding period of 1928. Although this represents some decline, it is not nearly in line with what naturally would have been expected under normal conditions. The unprecedented new demand from the coal industry made this temporary relief necessary during one period of the past year, and it may safely be predicted that next year's imports will show a more decided decline.

Acid Sulfuric—Demand continues in rather routine volume for this season of the year. Imports for the first eleven months of 1929 amounted to 16,208,111 pounds, as compared with 24,093,631 pounds for the corresponding period of the previous year. Exports were also slightly lower, amounting to 6,045,060 pounds as compared with 6,678,866 pounds for the same period of 1928.

Albumen—Egg has declined in price during the past month due to the drop in Oriental exchange. Quotations on edible are now at 72c @ 75c lb., while technical is at 70c @ 73c lb.

Alcohol—No relief has been in evidence in this market during the past month so that conditions generally are in rather poor shape. Large accumulated stocks have begun to make themselves felt in the form of price disturbances which are tending to become general, especially in jobbing circles. The only immediate relief must come in the form of a general cold spell throughout the country, for only by such a concerted movement into anti-freeze consumption can the present accumulation be remedied. The quietness of the market is also making itself felt in

1929 High	1929 Low	1928 High	1928 Low		Current Market		1930 High	1930 Low
.40	.30	.40	.30	Tannic, tech, 300 lb bbls...lb.	.30	.40	.40	.30
.38½	.38	.38	.34½	Tartaric, USP, crys, powd, 300 lb. bbls.....lb.	.38	.38½	.38½	.38
.85	.85	.85	.85	Tobias, 250 lb bbls.....lb.	.....	.85	.85	.85
2.75	2.75	2.75	2.75	Trichloroacetic bottles.....lb.	.....	2.75	2.75	2.75
2.00	2.00	2.00	2.00	Kegs.....lb.	.....	2.00	2.00	2.00
2.25	1.00	1.25	1.00	Tungstic, bbls.....lb.	1.40	1.70	1.70	1.40
.47	.38	.55	.43	Albumen, blood, 225 lb bbls..lb.	.38	.40	.40	.38
.20	.12			dark,.....bbls., lb.	.12	.20	.20	.12
.83	.70	.84	.78	Egg, edible.....lb.	.72	.75	.75	.72
.80	.70	.80	.70	Technical, 200 lb cases..lb.	.70	.73	.73	.70
.65	.60	.65	.60	Vegetable, edible.....lb.	.60	.65	.65	.60
.55	.50	.55	.50	Technical.....lb.	.50	.55	.55	.50
				Alcohol				
.17½	.17½	.20	.18½	Alcohol Butyl, Normal, 50 gal drs c-1 wks.....lb.	.17½	.18½	.18½	.17½
.18½	.17½	.19½	.18½	Drums, 1-c-1 wks.....lb.	.17½	.18½	.18½	.17½
.17½	.16½	.19	.17½	Tank cars wks.....lb.	.16½	.17½	.17½	.16½
1.67	1.67	2.25	1.75	Amyl (from pentane) drs c-1 wks.....gal.	.....	1.67	1.67	1.67
1.80	1.42	1.80	1.70	Diacetone, 50 gal drs del..gal.	1.42	1.60	1.60	1.42
2.75	2.69½	3.70	2.65	Ethyl, USP, 190 pf, 50 gal bbls.....gal.	2.66	2.75	2.75	2.66
.71	.71	.55	.50	Anhydrous, drums.....gal.	.....	.71	.71	.71
.52	.49	.52	.48½	Completely denatured, No. 1, 190 pf, 50 gal drs drums extra.....gal.	.....	.51	.51	.51
.51	.48	.50	.43	No. 5, 188 pf, 50 gal drs. drums extra.....gal.	.....	.50	50	.50
.50	.46	.46	.41	Tank, cars.....gal.	.....	.48	.48	.48
1.30	1.00	1.25	1.00	Isopropyl, ref, gal drs.....gal.	.60	1.00	1.00	.60
1.00	1.00	1.00	1.00	Propyl Normal, 50 gal dr..gal.	.....	1.00	1.00	1.00
.82	.80	.82	.80	Aldehyde Ammonia, 100 gal dr lb.	.80	.82	.82	.80
.65	.65	.65	.65	Alpha-Naphthol, crude, 300 lb bbls.....lb.	.....	.65	.65	.65
.34	.32	.37	.35	Alpha-Naphthylamine, 350 lb bbls.....lb.	.32	.34	.34	.32
3.50	3.25	3.30	3.25	Alum Ammonia, lump, 400 lb bbls, 1c-1 wks.....100 lb.	3.30	3.50	3.50	3.30
5.50	5.00	5.50	5.25	Chrome, 500 lb casks, wks .....100 lb.	5.00	5.25	5.25	5.00
3.50	3.00	3.20	3.10	Potash, lump, 400 lb casks wks.....100 lb.	3.20	3.50	3.50	3.20
3.75	3.75	3.75	3.75	Soda, ground, 400 lb bbls wks.....100 lb.	.....	3.75	3.75	3.75
24.30	24.30	26.00	24.30	Aluminum Metal, c-1 NY.100 lb.	.....	24.30	24.30	24.30
.20	.05	.40	.35	Chloride Anhydrous,.....lb.	.05	.15	.15	.05
.18	.17	.18	.17	Hydrate, 96%, light, 90 lb bbls.....lb.	.17	.18	.18	.17
.26	.25	.24	.18	Stearate, 100 lb bbls.....lb.	.25	.26	.26	.25
2.05	1.95	1.75	1.75	Sulfate, Iron, free, bags c-1 wks.....100 lb.	1.95	2.05	2.05	1.95
1.40	1.40	1.40	1.40	Coml, bags c-1 wks..100 lb.	.....	1.40	1.40	1.40
1.15	1.15	1.15	1.15	Aminoazobenzene, 110 lb kegs lb.	.....	1.15	1.15	1.15
				Ammonium				
.14½	.14	.14	.13½	Ammonia, anhyd, 100 lb cyl..lb.	.15½	.15½	.15½	.15½
.03½	.03½	.03	.03	Water, 26°, 800 lb dr del...lb.	.....	.03½	.03½	.03½
6.50	5.15			Bicarbonate, bbls., f.o.b. plant .....100 lb.	.....	5.15	5.15	5.15
.22	.21	.22	.21	Bifluoride, 300 lb bbls.....lb.	.21	.22	.22	.21
.12	.09	.09	.08½	Carbonate, tech, 500 lb cs..lb.	.09	.12	.12	.09
5.15	4.45	5.15	4.45	Chloride, white, 100 lb. bbls wks.....100 lb.	4.45	5.15	5.15	4.45
5.75	5.25	5.75	5.25	Gray, 250 lb bbls wks....lb.	5.25	5.75	5.75	5.25
.11½	.11	.11½	.11	Lump, 500 lb cks spot...lb.	.11	.11½	.11½	.11
.16	.15	.16	.15	Lactate, 500 lb bbls.....lb.	.15	.16	.16	.15
.10	.06	.10	.06	Nitrate, tech, casks.....lb.	.06	.10	.10	.06
.34	.26	.38	.27½	Persulfate, 112 lb kegs.....lb.	.26	.30	.30	.26
.13	.12½	.18	.18	Phosphate, tech, powd, 325 lb bbls.....lb.	.12½	.13	.13	.12½
2.40	2.05	2.90	2.20	Sulfate, bulk c-1.....100 lb.	.....	2.10	2.10	2.10
2.45	2.05	3.00	2.50	Southern points.....100 lb.	.....	2.10	2.10	2.10
60.85	52.40	60.85	60.85	Nitrate, 26% nitrogen 31.6% ammonia imported bags c. i. f.....ton	.....	57.60	57.60	57.60
.48	.36	.60	.55	Sulfocyanide, kegs.....lb.	.36	.48	.48	.36
1.70	1.60	2.25	1.72	Amyl Acetate, (from pentane) drs..... lb.	.222	.236	.236	.222
.24	.23	.....	.....	Tech., drs.....lb.	.23	.24	.24	.23
				Alcohol, see Fusel Oil.....				
				Furoate, 1 lb tins.....lb.		5.00	5.00	5.00
.16½	.15	.16½	.15½	Aniline Oil, 960 lb drs.....lb.	.15	.16	.16	.15
.37	.34	.48	.41	Annatto, fine.....lb.	.34	.37	.37	.34
.90	.80	1.00	.90	Anthraquinone, sublimed, 125 lb bbls.....lb.	.80	.90	.90	.80
.10	.08½	.12	.09½	Antimony, metal slabs, ton lots .....lb.	.....	.08½	.08½	.08½
.10	.09	.12	.10	Needle, powd, 100 lb cs....lb.	.....	.09½	.09½	.09½
.18	.13	.18	.17	Chloride, soln (butter of) cbys.....lb.	.13	.17	.17	.13
.10	.08½	.12	.09½	Oxide, 500 lb bbls.....lb.	.....	.08¼	.08¼	.08¼
.26	.24	.....	.....	Salt, 66%, tins.....lb.	.....	.24	.24	.24
.20	.16	.20	.16	Sulfuret, golden, bbls.....lb.	.16	.20	.20	.16
.42	.38	.42	.38	Vermilion, bbls.....lb.	.38	.42	.42	.38
.19	.17	.19	.17	Archil, conc, 600 lb bbls.....lb.	.17	.19	.19	.17
.14	.12	.14	.12	Double, 600 lb bbls.....lb.	.12	.14	.14	.12
.16	.12	.16	.15	Triple, 600 lb bbls.....lb.	.12	.14	.14	.12
.18½	.18½	.16	.15	Argols, 80% casks.....lb.	.....	.18½	.18½	.18½
.08	.08	.08	.08	Crude, 30%, casks.....lb.	.08	.08	.08	.08
.11	.09	.11	.10½	Arsenic, Red, 224 lb kegs, cs..lb.	.09	.11	.11	.09
.04½	.04	.04	.03½	White, 112 lb kegs.....lb.	.04	.04½	.04½	.04
15.00	4.75	14.75	14.75	Asbestine, c-1 wks.....ton	.....	15.00	15.00	15.00

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shipments against contracts, in which there have been increasing requests for delays. New business, too, is not up to the normal volume for this season of the year. Another factor which does not help matters is the increasing competition from producers of synthetic methanol who are seeking to enter the field long dominated by denatured alcohol. Of course, in any prolonged struggle, molasses prices would return to a much lower and more nearly normal level, and thus give alcohol producers an opportunity to lower production costs with a consequent lowering of alcohol prices. Unfortunately, in so far as the present is concerned, even higher prices than usual have been paid for molasses, and thus the alcohol industry is not at present in very favorable position to meet the challenge of methanol.

Ammonia—Practically all contracts have been completed during the past month, so that everything is closed for the year. Practically the same volume of business was booked as last year, although actual withdrawals against these contracts will depend upon the weather. However, it is generally expected that the coming year will be a good one. But little spot business has been in evidence due to the prevailing high prices of this material.

Ammonium Chloride—Business in this material continues to diminish with the gradual ascendancy of the electrified radio. Business is falling away rapidly and considerable effort is being made in the form of research looking to new fields of application.

Ammonium Sulfate—Has been in very easy position since the first of the year. Considerable supplies or resale material have come upon the market and with but slight buying interest in evidence, the market has shown considerable evidences of weakness. Up to the present time there has been no indication of any falling off in the quantities of this resale material and business has been reported at figures below current open market quotations which are at $2.10 per 100 lbs.

Antimony—Although the market declined somewhat during the middle of the month, conditions firmed up somewhat toward the month's close due chiefly to uncertainty regarding the tariff. The most recent proposal is a flat rate of 4c lb. There has in general been but little buying interest and what there has been, has been confined to spot and nearby points because of tariff possibilities. Temporarily, imports are merely quoting c. i. f. 6⅛c lb. for February-March and duty paid price will depend upon the final action in these matters.

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
				Barium			
60.00	57.00	57.00	47.00	Barium, Carbonate, 200 lb bags wks.....ton	58.00	60.00	58.00
.15	.14	.12½	.12	Chlorate, 112 lb kegs NY..lb.	.14	.15	.14
69.00	63.00	65.00	54.00	Chloride, 600 lb bbl wks...ton	63.00	69.00	63.00
.13	.12	.13½	.13	Dioxide, 88%, 690 lb drs...lb.	.12	.13	.12
.05½	.04½	.04½	.04½	Hydrate, 500 lb bbls.....lb.	.04½	.05½	.04½
.08½	.08	.08	.07½	Nitrate, 700 lb casks.....lb.	.08	.08¼	.08
24.00	23.00	24.00	23.00	Barytes, Floated, 350 lb bbls wks.....ton	23.00	24.00	23.00
8.00	5.00	8.00	5.00	Bauxite, bulk, mines.....ton	5.00	8.00	5.00
.37	.34	.38	.36	Beeswax, Yellow, crude bags..lb.	.....	.33	.33
.42	.39	.43	.41	Refined, cases.....lb.	.....	.38	.38
.53	.51	.58	.56	White, cases.....lb.	.51	.53	.51
.65	.60	.70	.65	Benzaldehyde, technical, 945 lb drums wks.....lb.	.60	.65	.60
				Benzene			
.23	.23	.23	.21	Benzene, 90%, Industrial, 8000 gal tanks wks.....gal.	.....	.22	.22
.23	.23	.23	.21	Ind. Pure, tanks works....gal.	.....	.22	.22
.74	.70	.74	.70	Benzidine Base, dry, 250 lb bbls.....lb.	.70	.74	.70
1.00	1.00	1.00	1.00	Benzoyl, Chloride, 500 lb drs.lb.	.....	1.00	1.00
.25	.25	.25	.25	Benzyl, Chloride, tech drs....lb.	.....	.25	.25
.26	.22	.26	.24	Beta-Naphthol, 250 lb bbl wk.lb.	.22	.24	.22
1.35	1.35	1.35	1.35	Naphthylamine, sublimed, 200 lb bbls.....lb.	.....	1.35	1.35
.68	.60	.65	.63	Tech, 200 lb bbls.....lb.	.60	.65	.60
90.00	75.00	90.00	80.00	Blanc Fixe, 400 lb bbls wks..ton	75.00	90.00	75.00
				Bleaching Powder			
2.25	2.00	2.25	2.25	Bleaching Powder, 300 lb drs c-1 wks contract.....100 lb.	2.00	2.35	2.00
4.60	3.90	5.25	4.65	Blood, Dried, fob, NY.....Unit	.....	3.90	3.90
5.00	4.40	5.35	4.75	Chicago.....Unit	.....	4.50	4.50
4.70	4.25	5.05	4.50	S. American shipt.....Unit	.....	4.10	4.10
.35	.32	.35	.31	Blues, Bronze Chinese Milori Prussian Soluble.....lb.	.....	.35	.35
42.00	39.00	30.00	29.00	Bone, raw, Chicago.....ton	.....	39.00	39.00
.07	.06	.07	.06	Bone, Ash, 100 lb kegs.....lb.	.06	.07	.07
.08½	.08½	.08½	.08½	Black, 200 lb bbls.....lb.	.....	.08¼	.08½
35.00	30.00	37.00	31.00	Meal, 3% & 50%, Imp....ton	.....	31.00	31.00
.03½	.02½	.05	.2½	Borax, bags.....lb.	.02½	.03½	.03½
.14	.10½	.12	.10½	Bordeaux, Mixture, 16% pwd..lb.	.12	.14	.14
.14	.10	.10	.08	Paste, bbls.....lb.	.12	.14	.14
28.00	26.00	28.00	26.00	Brazilwood, sticks, shpmt....lb.	26.00	28.00	28.00
1.20	.60	1.20	.60	Bronze, Aluminum, powd blk.lb.	.60	1.20	1.20
1.25	.55	1.25	.55	Gold bulk.....lb.	.55	1.25	1.25
.195	.184	1.60	1.40	Butyl, Acetate, normal drs... ..... lb.	.189	.20	.20
.186	.181	1.55	1.35	Tank, wks.....lb.	.....	.186	.186
.70	.34	.70	.70	Aldehyde, 50 gal drs wks...lb.	.34	.44	.44
.....	.....			Carbitol s ee Diethylene Glycol Mono (Butyl Ether).....	.....	.....	.....
.50	.50			Cellosolv e (see Ethylene glycol mono b utyl ether)..... Furoate, tech., 50 gal. dr., lb.	.....	.50	.50
.36	.25	.36	.34	Propionate, drs.....lb.	.25	.27	.27
.60	.25	.60	.60	Stearate, 50 gal drs.....lb.	.25	.30	.30
.60	.57	.60	.57	Tartrate, drs.....lb.	.57	.60	.60
1.75	.75	2.00	1.35	Cadmium, Sulfide, boxes.....lb.	.95	1.75	1.75
				Calcium			
4.50	4.50	4.50	3.50	Calcium, Acetate, 150 lb bags c-1.....100 lb.	.....	4.50	4.50
.09	.07	.09	.06	Arsenate, 100 lb bbls c-1 wks.....lb.	.07	.09	.09
.06	.05	.06	.05	Carbide, drs.....lb.	.05	.06	.06
1.00	1.00	1.00	1.00	Carbonate, tech, 100 lb bags c-1.....lb.	1.00	1.00	1.00
25.00	22.75	27.00	25.00	Chloride, Flake, 375 lb drs c-1 wks.....ton	.....	22.75	22.75
20.00	20.00	23.00	20.00	Solid, 650 lb drs c-1 fob wks .....ton	20.00	20.00	20.00
52.00	42.00	52.00	52.00	Nitrate, 100 lb bags.....ton	42.00	43.00	43.00
1.25	1.25	.....	.....	Peroxide, 100 lb. drs.....lb.	.....	1.25	1.25
.08	.07	.08	.07	Phosphate, tech, 450 lb bbls lb.	.08	.08½	.08½
.26	.25			Stearate, 100 lb bbls.....lb.	.25	.26	.26
88.15	82.15			Calurea, bags S. points. c.i.f. ton	.....	88.65	88.65
.18	.18	.18	.18	Camwood, Bark, ground bbls..lb.	.....	.18	.18
.24	.22	.28	.22	Candelilla Wax, bags.....lb.	.....	.20	.20
.....	.....			Carbitol, (See Diethylene Glycol Mono Methyl Ether).....	.....	.....	.....
.15	.08	.15	.08	Carbon, Decolorizing, 40 lb bags c-1.....lb.	.08	.15	.15
.12	.12	.12	12	Black, 100-300 lb cases lc-1 NY.....lb.	.....	.12	.12
.06	.05½	.06	.05½	Bisulfide, 500 lb drs lc-1 NY.....lb.	.05½	.06	.06
.06	.06	.06	.06	Dioxide, Liq. 20-25 lb cyl...lb.	.....	.06	.06
.07½	.06½	.07½	07	Tetrachloride, 1400 lb drs delivered.....lb.	.06½	.07	.07
.43	.35	.58	.45	Carnauba Wax, Flor, bags....lb.	.36	.37	.37
.40	.33	.60	.40	No. 1 Yellow, bags.....lb.	.....	.33	.33
.32	.28	.38	.34	No. 2 N Country, bags.....lb.	.....	.27	.27
.36	.31	.56	.38	No. 2 Regular, bags.....lb.	.....	.30	.30
.25	.24	.32	.25	No. 3 N. C.....lb.	.....	.23	.23
.26	.24	.32	25½	No. 3 Chalky.....lb.	.....	.23	.23
.17	.15	.18½	.14½	Casein, Standard, ground.....lb.	.14½	.15½	.15½

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Beeswax—Is again lower with quotations on crude at 33c lb., while refined is at 38c lb. The general feeling, however, seems to be that prices have reached their lowest level and that any evidence at all of renewed buying interest will result in advancing prices.

Benzene—During the past month, prices on this material declined 1c gal., but despite lower prices there has as yet been no great revival of business in this market. Both producers and consumers seem to be carrying rather heavy stocks and activity cannot be renewed until consumers have used the quantities which they now have on hand.

Blood—Although prices have remained unchanged at quoted levels during the past month, it is reported that a firmer tendency is gradually making itself felt. Stocks are very light and it is generally thought that prices will go higher in the near future.

Calcium Acetate—Supplies of this material are rather freer than they have been for some considerable time. In some quarters it is reported that supplies of imported material brought in about the end of last year are still available, while it is also said that quantities of this material are so small that they may be disregarded. It is also pointed out that this is the peak producing season and that stocks on hand will not last for very long once the seasonal shut down of the wood distillers comes along.

Calcium Chloride—The business level of the past month in this commodity has been considerably above that of January of last year, due chiefly to its new uses in the coal industry and as an ice and snow remover. Highway demand has not as yet taken shape and is not to be expected much before the end of March with deliveries beginning in April. Requirements are being figured now and sales effort is already under way, however.

Carnauba Wax—Some shortage in stocks was evidenced early in the past month, but more recent arrivals have rectified this conditions and prices generally show a slight decline from those which existed when last quoted. Quotations are at 36c @ 37c lb. on Flor; 33c lb. on No. 1, yellow; 27c lb. on No. 2 NC; 30c lb. on No. 2 Regular; and 23c lb. on No. 2 NC and chalky.

Casein—Has been in easier position during the past month. It is still the season so far as buying is concerned and consequently there has been a soft tendency throughout the market. However, it is pointed out that stocks on hand are at a minimum and that any concerted buying demand would result in higher prices almost immediately. There are

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
				Cellosolve (see Ethylene glycol mono ethyl ether)			
				Acetate (see Ethylene glycol mono ethyl ether acetate)			
.30	.20	.30	.26	Celluloid, Scraps, Ivory cs.....lb.	.....	.20	.20	.20
.20	.18	.20	.18	Shell, cases.....lb.	.18	.20	.20	.18
.32	.15	.32	.30	Transparent, cases.....lb.	.....	.15	.15	.15
1.25	1.20	1.40	1.40	Cellulose, Acetate, 50 lb kegs .lb.	1.20	1.25	1.25	1.20
.03½	.03	.03½	.03	Chalk, dropped, 175 lb bbls...lb.	.03	.03½	.03½	.03
.03½	.02	.04½	.04½	Precip, heavy, 560 lb cks...lb.	.02	.03½	.03½	.02
.03½	.02½	.03½	.02½	Light, 250 lb casks.....lb.	.02½	.03½	.03½	.02½
.19	.18	.19	.18	Charcoal, Hardwood, lump, bulk wks.....bu.	.18	.19	.19	.18
.06½	.06	.06½	.06	Willow, powd, 100 lb bbl wks.....lb.	.06	.06½	.06½	.06
.05	.04	.05	.04	Wood, powd, 100 lb bbls...lb.	.04	.05	.05	.04
.02	.03½	.03	.02	Chestnut, clarified bbls wks,..lb.	.02½	.03	.03	.02½
.02½	.01½	.02	.01½	25% tks wks.....lb.	.01½	.02½	.02½	.01½
.04 1/8	.04½	.04 1/8	.04 1/8	Powd, 60%, 100 lb bgs wks.lb.	.....	.04½	.04½	.04½
.06	.05½	.06	.05½	Powd, decolorized bgs wks..lb.	.05½	.06	.06	.05½
9.00	8.00	9.00	8.00	China Clay, lump, blk mines.ton	8.00	9.00	9.00	8.00
.02	.01½	.02	.01½	Powdered, bbls.....lb.	.01½	.02	.02	.01½
12.00	10.00	12.00	10.00	Pulverized, bbls wks.....ton	10.00	12.00	12.00	10.00
25.00	15.00	25.00	15.00	Imported, lump, bulk.....ton	15.00	25.00	25.00	15.00
.03½	.01½	.03½	.03	Powdered, bbls.....lb.	.01½	.03	.03	.01½
				Chlorine				
.08½	.07	.09	.08	Chlorine, cyls 1c-1 wks contract .....lb.	.07½	.08½	.08½	.07½
.04½	.04½	.....	.....	cyls, cl wks,. contract ...lb.	.....	.04½	.04½	.04½
.03	.025	.03½	.03½	Liq tank or multi-car lot cyls wks contract.....lb.	.025	.025	.025	.025
.10½	.08½	.07	.07	Chlorobenzene, Mono, 100 lb. drs 1c-1 wks.....lb.	.10	.10½	.10½	.10
.20	.16	.22	.20	Chloroform, tech, 1000 lb drs..lb.	.....	.16	.16	.16
1.35	1.00	1.35	1.00	Chloropicrin, comml cyls.....lb.	1.00	1.35	1.35	1.00
.29	.26	.29	.26	Chrome, Green, CP.....lb.	.26	.29	.29	.26
.11	.06½	.11	.06½	Commercial.....lb.	.06½	.11	.11	.06½
.18	.15	.17	.15½	Yellow.....lb.	.17	.18	.18	.17
.05½	.04½	.05½	.04½	Chromium, Acetate, 8% Chrome bbls.....lb.	.04½	.05½	.05½	.04½
.05½	.05½	.05½	.05½	20° soln, 400 lb bbls.....lb.	.....	.05½	.05½	.05½
.28	.27	.28	.27	Fluoride, powd, 400 lb bbl..lb.	.27	.28	.28	.27
.35½	.34½	.35½	.34½	Oxide, green, bbls.....lb.	.34½	.35½	.35½	.34½
10.50	10.00	9.50	9.00	Coal tar, bbls.....bbl	10.00	10.50	10.50	10.00
2.22	2.10	2.22	2.10	Cobalt Oxide, black, bags....lb.	2.10	2.22	2.22	2.10
1.01	.95	.87	.84	Cochineal, gray or black bag..lb.	.95	1.01	1.01	.95
.95	.95	.86	.86	Teneriffe silver, bags.....lb.	.....	.95	.95	.95
				Copper				
24.00	17.00	17.00	12.90	Copper, metal, electrol...100 lb.	.....	17.78	17.78	17.78
.25	.13	.17½	.16	Carbonate, 400 lb bbls.....lb.	.13	.21½	.21½	.13
.28	.25	.28	.28	Chloride, 250 lb bbls.....lb.	.25	.28	.28	.25
.60	.44	.50	.48	Cyanide, 100 lb drs.....lb.	.44	.45	.45	.44
.32	.16½	.17	.16½	Oxide, red, 100 lb bbls.....lb.	.24	.32	.32	.24
.19	.18	.19	.18	Sub-acetate verdigris, 400 lb bbls.....lb.	.18	.19	.19	.18
7.00	5.50	5.50	5.05	Sulfate, bbls c-1 wks...100 lb.	.....	5.50	5.50	5.50
14.00	13.00	14.00	13.00	Copperas, crys and sugar bulk c-1 wks.....ton	13.00	14.00	14.00	13.00
1.35	1.25	1.35	1.25	Sugar, 100 lb bbls.....100 lb.	1.25	1.35	1.35	1.25
.42	.40	.42	.40	Cotton, Soluble, wet, 100 lb bbls.....lb.	.40	.42	.42	.40
.....	.....	.....	.....	Cottonseed, S. E. bulk c-1...ton	.....	.....	.....	.....
.....	.....	.....	.....	Meal S. E. bulk.....ton	.....	.....	.....	.....
38.00	37.50	38.00	36.00	7% Amm., bags mills...ton	37.50	38.00	38.00	37.50
.28	26½	.27½	.26	Cream Tartar, USP, 300 lb bbls.....lb.	.26½	.27	.27	.26½
.42	.40½	.42	.40	Creosote, USP, 42 lb cbys....lb.	.40	.42	.42	.40
.19	.15	.19	.17	Oil, Grade 1 tanks.....gal.	.15	.16	.16	.15
.23	.13	.23	.21	Grade 2.....gal.	.13	.14	.14	.13
.28	.13	.28	.25	Grade 3.....gal.	.13	.14	.14	.13
.17	.14	.20	.17½	Cresol, USP, drums.....lb.	.14	.17	.17	.14
.36	.32			Crotonaldehyde, 50 gal dr....lb.	.32	.36	.36	.32
.17	.16	.17	.16	Cudbear, English.....lb.	.16	.17	.17	.16
.16	.12½	.18½	.18½	Cutch, Rangoon, 100 lb bales..lb.	.12½	.13	.13	.12½
.08½	.08	.07	.06	Borneo, Solid, 100 lb bale..lb.	.08	08½	.08½	.08
2.00	2.00	1.75	1.67½	Cyanamide, bulk c-1 wks Nitrogen unit.....	.....	2.00	2.00	2.00
4.92	4.62	5.12	3.77	Dextrin, corn, 140 lb bags.100 lb.	4.62	4.82	4.82	4.62
4.87	4.57	5.07	3.72	White, 130 lb bags.....100 lb.	4.57	4.77	4.77	4.57
.09	.08	.09	.08	Potato, Yellow, 220 lb bgs..lb.	.08	.09	.09	.08
.09	.08	.09	.08	White, 220 lb bags 1c-1....lb.	.08	.09	.09	.08
.08½	.08	.08½	.08	Tapioca, 200 lb bags 1c-1..lb.	.08	.08½	.08½	.08
3.80	3.80	3.80	3.80	Diamylphthalate, drs wks...gal.	.....	3.80	3.80	3.80
3.10	2.70	2.90	2.85	Dianisidine, barrels.....lb.	.....	2.70	2.70	2.70
.26½	.26½	.28	.26½	Dibutylphthalate, wks.....lb.	.25½	.28	.28	.25½
.31½	.29½	.31½	.29½	Dibutyltartrate, 50 gal drs....lb.	.29½	.31½	.31½	.29½
.13	.05	.....	....	Dichloroethylether, 50 gal drs lb.	.05	.07	.07	.05
.65	.55	.65	.55	Dichloromethane, drs wks....lb.	.55	.65	.65	.55
3.00	2.75	.25	.23	Diethylamine, 400 lb drs.....lb.	2.75	3.00	3.00	2.75
1.90	1.85	2.15	2.15	Diethylcarbonate, drs .....gal.	1.85	1.90	1.90	1.85
.60	.55	2.00	1.85	Diethylaniline, 850 lb drs.....lb.	.55	.60	.60	.55
.13	.10	.60	.55	Diethyleneglycol, drs.....lb.	.10	.12	.12	.10
.15	.13	.15	.10	Mono ethyl ether, drs....lb.	.13	.15	.15	.13
.30	.25	.35	.25	Mono butyl ether, drs....lb.	.28	.30	.30	.28
.15	.13			Mono methyl ether, 50 gal. dr.....lb.	.15	.18	.18	.15
.22	.15	.....	.....	Diethylene oxide, 50 gal dr....lb.	.....	.50	.50	.50
.50	.50	.....	.....	Diethylorthotoluidin, drs.....lb.	.64	.67	.67	.64
.67	.64	.67	.64	Diethyl phthalate, 1000 lb drums.....lb.	.24	.26	.26	.24
.26	.24	.26	.24	Diethylsulfate, technical, 50 gal drums.....lb.	.30	.35	.35	.30
.35	.30	.35	.30	Dimethylamine, 400 lb drs...lb.	.....	2.62	2.62	2.62
2.62	2.62	2.62	2.62	Dimethylaniline, 340 lb drs...lb.	.26	.28	.28	.26
.32	.26	.32	.30					

Incidents of the constructive service one industry renders to others

When artificial leather had "*Halitosis*"

POTENTIAL uses for artificial leather were numerous enough. The product had been made durable, good-looking, readily adaptable. Yet the manufacturers found themselves severely handicapped in expanding their market . . .

Due to impurities in the solvent employed for finishing, artificial leather had an objectionable odor.

The problem was brought to the attention of our chemists. After considerable study and experiment they perfected a solvent, ethyl acetate, which was entirely free from impurities and consequently left no disagreeable odor in the finished product.

Artificial leather could then be put to many uses for which it formerly was unsuitable.

The records of the U. S. Industrial Alcohol Co., contain many such illustrations of practical service. Our laboratories are constantly developing new alcohol derivatives to meet the requirements of new and changing industrial conditions.

As the largest producers of industrial alcohol and alcohol chemicals, with bulk reserves warehoused at many strategic points throughout the country, we can deliver practically any quantity of any standard alcohol product at any time.

A recent revision of our booklet, "Solvents," has proved useful to many industrial concerns. Write for your free copy.

Good to look at—yes! But buyers objected to its odor. Thus artificial leather was barred from many sales fields until alcohol-chemistry discovered an odorless solvent.

U. S. INDUSTRIAL ALCOHOL CO. **U. S. Industrial Chemical Co., Inc.**

110 East 42nd Street, New York

Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Jan. 1930 $1.072

some slight stocks of domestic material on hand but casein from the Argentine has been moving into consuming channels as fast as it has become available. Domestic casein production, according to preliminary figures, amounted to 11,875,000 pounds, the output of 180 factories during the second quarter of 1929. This brings total domestic production of casein (skim milk or buttermilk product) for the first six months of 1929 up to approximately 16,570,000 pounds. In 1928 United States production in the second quarter amounted to 7,991,000 pounds, the six months total aggregating 12,681,000 pounds. The number of factories reporting in 1928 were 140.

Chlorine—The past month has been rather a quiet one in this market following the activity of the contract season. Practically everybody has contracted for their requirements, but conditions in the market are still in rather unsettled state.

Copper Sulfate—After a very quiet opening two weeks of the past month, the closing weeks have witnessed a returning activity which has done much to raise the business of the month much nearer to a normal level. Due to the fact that the first two weeks of the month were such poor ones, shipments for the month of January are not up to those of January a year ago, but they do represent a tremendous improvement over December's business, which, of course, was very poor, being the worst December of the past six years insofar as the copper sulfate business was concerned. This is the season when business should begin to become accelerated in this market and it is expected that from now on a constant improvement will be in evidence. The domestic agricultural demand is just starting and from now on will probably continue to grow as is customary at this season of the year. Prices are firm and give every evidence of continuing to be that way.

Egg Yolk—As there are no stocks of this material in China, the drop in the Oriental rate of exchange had no effect upon prices here. On the contrary prices are higher due to the fact that supplies of new crop will not be available before July 1 and stocks on hand here are diminishing rapidly. Quotations are now at 78c @ 80c lb.

Ethyl Acetate—During the past month producers announced an advance of 7c lb. on this material since at the previous price level, it was being sold below the cost of production. Conditions in this market have not as yet improved to any great extent although demands from consumers are said to have become a bit better. However, conditions are best described as routine at current prices of 11.5c lb. in

1929 High	1929 Low	1928 High	1928 Low		Current Market		1930 High	1930 Low
.50	.45	.50	.45	Dimethylsulfate, 100 lb drs...lb.	.45	.50	.50	.45
.16½	.15	.16½	.15½	Dinitrobenzene, 400 lb bbls...lb.	.15½	.16½	.16½	.15½
.15	.15	.16	.15	Dintrochlorobenzene, 400 lb bbls.....lb.	.13	.15	.15	.13
.37	.34	.34	.32	Dinitronaphthalene, 350 lb bbls .....lb.	.34	.37	.37	.34
.32	.31	.32	.31	Dinitrophenol, 350 lb bbls....lb.	.31	.32	.32	.31
.19	.17	.19	.18	Dinitrotoluene, 300 lb bbls...lb.	17	.18	.18	.17
.49	.42	.90	.48	Diorthotolyguanidine, 275 lb bbls wks.....lb.	.42	.46	.46	.42
.....	.....	.....	.....	Dioxan (See Diethylene Oxide)	.....	.....	.....	.....
.50	.40			Diphenyl.....lb.	.40	.50	.50	.40
.47	.40	.47	.45	Diphenylamine.....lb.	.....	.40	.40	.40
.40	.30	.72	.40	Diphenylguanidine, 100 lb bbl lb.	.30	.35	.35	.30
.30	.26	.30	.26	Dip Oil, 25%, drums.....lb.	.26	.30	.30	.26
57.00	46.50	62.00	58.00	Divi Divi pods, bgs shipmt..ton	.....	46.50	46.50	46.50
.05½	.05	.05½	.05	Extract.....lb.	.05	.05½	.05½	.05
.84	.77	.82	.73	Egg Yolk, 200 lb cases.....lb.	.78	.80	.80	.78
1.90	1.70	1.75	1.7	Epsom Salt, tech, 300 lb bbls c-1 NY.....100 lb.	1.70	1.90	1.90	1.70
.39	.38	.38	.37	Ether, USP, 1880, 50 lb drs..lb.	.38	.39	.39	.38
.122	.108	1.05	.75	Ethyl Acetate, 85% Ester, ... tanks.....lb.	.....	.115	.115	.115
.129	.111	1.25	1.10	drums.....lb.	.122	.158	.158	.122
.68	.65	.....	.....	Acetoacetate, 50 gal drs....lb.	.65	.68	.68	.65
1.11	1.05	1.11	1.05	Benzylaniline, 300 lb drs...lb.	1.05	1.11	1.11	1.05
.55	.50	.70	.70	Bromide, tech, drums .....lb.	.50	.55	.55	.50
1.90	1.85	.....	.....	Carbonate, 90%, 50 gal drs gal.	1.85	1.90	1.90	1.85
.22	.22	.22	.22	Chloride, 200 lb. drums....lb.	.....	.22	.22	.22
.40	.35	.....	.....	Chlorocarbonate, 50 gal dr.gal.	.35	.40	.40	.35
.52	.50	.....	.....	Ether, Absolute, 50 gal drs..lb.	.50	.52	.52	.50
5.00	5.00			Furoate, 1 lb tins .....lb.	.....	5.00	5.00	5.00
.35	.25	3.50	3.50	Lactate, drums works.....lb.	.25	.29	.29	.25
.30	.30	.30	.30	Methyl Ketone, 50 gal drs..lb.	.....	.30	.30	.30
.55	.45	.55	.45	Oxalate, drums works.....lb.	.45	.55	.55	.45
.36	.30	.36	.30	Oxybutyrate, 50 gal drs wks.lb.	.....	.30½	.30½	.30½
.70	.79	.70	.70	Ethylene Dibromide, 60 lb dr .lb.	.....	.70	.70	.70
.85	.75	.85	.75	Chlorhydrin, 40%, 50 gal drs chloro. cont.....lb.	.75	.85	.85	.75
.10	.05	.11	.07	Dichloride, 50 gal drums...lb.	.05	.07	.07	.05
.30	.25	.40	.25	Glycol, 50 gal drs wks.....lb.	.25	.28	.28	.25
.31	.23	.27	.31	Mono Butyl Ether drs wks.	.23	.27	.27	.23
.24	.16	.20	.24	Mono Ethyl Ether drs wks	.16	.20	.20	.16
.26	.19	.23	26	Mono Ethyl Ether Acetate dr. wks.....	.19	.23	.23	.19
.23	.19			Mono Methyl Ether, drs.lb.	.19	.23	.23	.19
				Oxide, cyl.....lb.	.....	2.00	2.00	2.00
.65	.45	.65	.62	Ethylidenaniline.....lb.	.45	.47½	.47½	.45
25.00	20.00	25.00	20.00	Feldspar, bulk.....ton	25.00	20.00	25.00	20.00
21.00	15.00	21.00	15.00	Powdered, bulk works.....ton	15.00	21.00	21.00	15.00
.09	.05	.09	.07½	Ferric Chloride, tech, crystal 475 lb bbls.....lb.	.05	.07½	.07½	.05
4.25&10	3.65&10	5.50&10	4.90&10	Fish Scrap, dried, wks.....unit	.....	Nom.	Nom.	.....
4.00&50	3.50&50	4.75&50	4.00&50	Acid, Bulk 7 & 3½% delivered Norfolk & Balt. basis...unit	.....	Nom.	Nom.	.....
46.00	41.00	25.00	25.00	Fluorspar, 98%, bags.....	41.00	46.00	46.00	41.00

Formaldehyde

.....	.....	.....	.....	Formaldehyde, aniline, 100 lb.	.....	.....	.....	.....
.42	.37½	.42	.39	drums.....lb.	.37½	.42	.42	.37½
.10	.08½	.09	.08½	USP, 400 lb bbls wks.....lb.	.07½	.08	.08	.07½
.04	.02½	.04	.02½	Fossil Flour.....lb.	.02½	.04	.04	.02½
20.00	15.00	20.00	15.00	Fullers Earth, bulk, mines ..ton	15.00	20.00	20.00	15.00
30.00	25.00	30.00	25.00	Imp. powd c-1 bags.....ton	25.00	30.00	30.00	25.00
.19½	.17	.19½	.17½	Furfural 500 lb drums.....lb.	.17½	.19½	.19½	.17½
.30	.30	.....	.....	Furfuramide (tech) 100 lb dr..lb.	.....	.30	.30	.30
5.00	5.00	.....	.....	Furfuryl Acetate, 1 lb tins....lb.	.....	5.00	5.00	5.00
.50	.50	.....	.....	Alcohol, (tech) 100 lb dr....lb.	.....	.50	.50	.50
1.00	.50	.....	.....	Furoic Acid (tech) 100 lb dr...lb.	.....	.50	.50	.50
1.35	1.35	1.35	1.3	Fusel Oil, 10% impurities ...gal.	.....	1.35	1.35	1.35
.05	.04	.05	.04	Fustic, chips.....lb.	.04	.05	.05	.04
.22	.20	.22	.20	Crystals, 100 lb boxes.....lb.	.20	.22	.22	.20
.10	.09	.10	.09	Liquid, 50°, 600 lb bbls....lb.	.09	10	.10	.09
.16	14	.23	.20	Solid, 50 lb boxes.....lb.	.14	.16	.16	.14
26.00	25.00	32.00	30.00	Sticks.....ton	25.00	26.00	26.00	25.00
.52	.45	.52	.50	G Salt paste, 360 lb bbls.....lb.	.45	.50	.50	.45
.21	.18	.21	.20	Gall Extract.....lb.	.18	.20	.20	.18
.07	.06	.09	.08	Gambier, common 200 lb cs...lb.	.06	.07	.07	.06
.14	.08	.14	.12	25% liquid, 450 lb bbls....lb.	.08	.10	.10	.08
.09	.08½	.12	.11	Singapore cubes, 150 lb bg..lb.	.08½	.09	.09	.08½
.50	.45	.50	.45	Gelatin, tech, 100 lb cases....lb.	.45	.50	.50	.45
1.70	.70	1.00	.70	Glauber s Salt, tech, c-1 wks.....100 lb.	1.00	1.70	1.70	1.00
3.34	3.20	3.34	3.24	Glucose (grape sugar) dry 70-80° bags c-1 NY.....100 lb.	3.24	3.34	3.34	3.24
3.14	3.14	3.14	3.14	Tanner's Special, 100 lb bags .....100 lb.	.....	3.14	3.14	3.14
.24	.20	.24	.20	Glue, medium white, bbls ...lb.	.20	.24	.24	.20
.26	.22	.26	.22	Pure white, bbls.....lb.	.22	.26	.26	.22
.16	.13½	.19	.15	Glycerin, CP, 550 lb drs.....lb.	.14	.14½	.14½	.14
.12½	.10½	.15	.11½	Dynamite, 100 lb drs..... lb.	.12	.12½	.12½	.12
.08½	.07½	.10½	.08½	Saponification, tanks.....lb.	.07½	.08	.08	.07½
.07½	.06½	.09½	.07½	Soap Lye, tanks.....lb.	07	.07½	.07½	.07
35.00	15.00	35.00	15.00	Graphite, crude, 220 lb bgs...ton	15.00	35.00	35.00	15.00
.09	.06	.09	.06	Flake, 500 lb bbls.....lb.	.06	09	.09	.06

Gums

.04½	.03	.04½	.03½	Gum Accroides, Red, coarse and fine 140-150 lb bags.....lb.	.03½	.04½	.04½	.03½
.06½	.06½	.06½	.06	Powd, 150 lb bags .....lb.	.06	.06½	.06½	.06

Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Jan. 1930 $1.072

tanks, 11.8c lb. carlot drums, and 12.2c lb. less than carlot, drums. All quotations are on spot only.

Fish Scrap—There is no more of this material available so that quotations are now on a purely nominal basis.

Formaldehyde—A greater degree of stability in the methanol market has made for steadier conditions here. Prices are fairly, steady with demand somewhat routine and showing a slight tendency to improve. Exports for the first eleven months of 1929 were below those for the corresponding period of 1928, amounting to 2,085,836 pounds, as compared with 2,154,778 pounds for the first eleven months of 1928.

Glycerin—Conditions in this market continue quiet and have shown no improvement. Exports from the United States during November amounted to 64,467 pounds, as against 58,071 pounds in November 1928. Imports for November were 385,183 pounds of crude and 204,951 pounds of refined, totalling 590, 134 pounds as compared with 2,440,403 pounds for both crude and refined for the same month of 1928.

Gums—The market has pretty generally recovered from the slump at the first of the year and all prices are back to quoted levels with the exception of Damar and Singapore, which are both slightly off. Batavia standard is at 19½c @ 20c lb., while E seeds is at 12¾c @ 13c lb. As for Singapore, No. 1 is at 23½c @ 24c lb., and No. 2 at 19¾c @ 20¾c lb. One factor which is bound to prove of considerable importance in the gum market in the near future, is the fact that during the last quarter of 1929, there was less gum ordered for forward shipment than in any quarter since 1920. Under ordinary conditions this should tend to make the period from February through May a very lean one insofar as supplies of gums in the domestic market are concerned. This situation will be intensified by the fact that consumers have been drawing on their own stocks during the past two months. Trade estimates the 1929-30 crop of sandarac gum at about 120 metric tons. Gum arrivals at Casablanca, for ten months of 1929 amounted to from 40 to 45 tons, leaving a balance to be shipped from the interior of about 75 or 80 tons. Total gum exports during ten months were 37 tons out of which 14 tons went to Germany, 12 tons to the United States, and 10 tons to France. Prices dropped from 1,800 francs per kilos ex store at time of first arrivals to 1,400 francs per 100 kilos during September. The market strengthened the first part of November and gum was quoted at 1,600 francs per 100 kilos ex

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
.20	.18	.20	.18	Yellow, 150-200 lb bags....lb.	.18	.20	.20	.18
.40	.35	.40	.35	Animi (Zanzibar) bean & pea 250 lb cases.....lb.	.35	.40	.40	.35
.55	.50	.55	.50	Glassy, 250 lb cases.....lb.	.50	.55	.55	.50
.12	.09	.12	.09	Asphaltum, Barbadoes (Manjak) 200 lb bags.....lb.	.09	.12	.12	.09
.17	.15	.17	.15	Egyptian, 200 lb cases.....lb.	.15	.17	.17	.15
65.00	58.00	65.00	55.00	Gilsonite Selects, 200 lb bags .....ton	58.00	65.00	65.00	58.00
.26	.22	.26	.22½	Damar Batavia standard 136, lb cases.....lb.	.19½	.20	.20	.19½
.11	.10½	.11	.10½	Batavia Dust, 160 lb bags.....lb.	.10½	.11	.11	.10½
.17½	.15	.17½	.16	E Seeds, 136 lb cases.....lb.	.12¾	.13	.13	.12¾
.13½	.13	.14½	.13	F Splinters, 136 lb cases and bags.....lb.	.13	.13½	.13½	.13
.30½	.26	.30½	.29½	Singapore, No 1, 224 lb cases lb.	.23½	.24	.24	.23½
.24	.21½	.24	.20	No. 2, 224 lb cases.....lb.	.19¾	.20½	.20½	.19¾
.14	.10	.15	.13½	No. 3, 180 lb bags.....lb.	.10	.11½	.11½	.10
.40	.38	.48	.33	Benzoin Sumatra, U. S. P. 120 lb cases.....lb.	.38	.40	.40	.38
.17	.14	.15	.14	Copal Congo, 112 lb bags, clean opaque.....lb.	.16	.17	.17	.16
.09	.08½	.09	.08½	Dark, amber.....lb.	.07½	.08	.08	.07½
.14	.12½	.14	.12½	Light, amber.....lb.	.12½	.14	.14	.12½
.36	.35	.36	.35	Water white.....lb.	.37	.45	.45	.37
.65	.58	.65	.58	Mastic.....lb.	.63	.65	.65	.63
.17½	.17	.17½	.16	Manila, 180-190 lb baskets Loba A.....lb.	.17	.17½	.17½	.17
.16½	.15½	.16½	.15	Loba B.....lb.	.15½	.16	.16½	.15½
.14½	.13½	.14	.13	Loba C.....lb.	.13½	.14	.14	.13½
.19	.17	.19	.16	Pale bold, 224 lb cs.....lb.	.17	.19	.19	.17
.13½	.13	.13½	.12	Pale nubs.....lb.	.13	.13½	.13½	.13
.11	.10	.11	.07½	East Indies chips, 180 lb bags lb.	.10	.11	.11	.10
.21	.20	.21	.17	Pale bold, 180 lb bags....lb.	.20	.21	.21	.20
.16	.15	.16	.14	Pale nubs.....lb.	.15	.16	.16	.15
.....	.....	.....	.....	Pontianak, 224 lb cases....				
.23	.20	.25½	.22	Pale bold gen No 1.....lb.	.20	.21	.21	.20
.15	.14½	.15	.13	Pale gen chips spot.....lb.	.14½	.15	.15	.14½
.14	.13½	.14	.13	Elemi, No. 1, 80-85 lb cs...lb.	.13½	.14	.14	.13½
.13½	.13	.13½	.13	No. 2, 80-85 lb cases.....lb.	.13	.13½	.13½	.13
.13	.12	.13	.12	No. 3, 80-85 lb cases.....lb.	.12	.13	.13	.12
.57	.50	.57	.50	Kauri, 224-226 lb cases No. 1 .....lb.	.50	.57	.57	.50
.38	.35	.38	.35	No. 2 fair pale.....lb.	.35	.38	.38	.35
.12	.10	.12	.10	Brown Chips, 224-226 lb cases.....lb.	.10	.12	.12	.10
.....	.....	.....	.....	Bush Chips, 224-226 lb.				
.40	.38	.40	.38	cases.....lb.	.38	.40	.40	.38
.....	.....	.....	.....	Pale Chips, 224-226 lb cases .....lb.	.24½	.26	.26	.24½
.26	.24½	.26	.24½	Sandarac, prime quality, 200 lb bags & 300 lb casks...lb.	.40	.38	.40	.38
.72	.35	.60	.26	Helium, 1 lit. bot. .....lit.	.....	25.00	25.00	25.00
.20	.17	.....	.....	Hematine crystals, 400 lb bbls lb.	.14	.18	.18	.14
.20	.14	.20	.17	Paste, 500 bbls.....lb.	.....	.11	.11	.11
.11	.11	.11	.11	Hemlock 25%, 600 lb bbls wks lb.	.03	.03½	.03½	.03
.03½	.03	.03½	.03½	Bark.....ton	.....	16.00	16.00	16.00
17.00	16.00	16.00	16.00	Hexalene, 50 gal drs wks.....lb.	.....	.60	.60	.60
.60	.60	.60	.60	Hexamethylenetetramine, drs .lb.	.48	.50	.50	.48
.58	.48	.56	.62	Hoof Meal, fob Chicago....unit	.....	3.75	3.75	3.75
4.00	3.75	4.00	4.00	South Amer. to arrive....unit	.....	3.75	3.75	3.75
3.90	3.75	.....	.....	Hydrogen Peroxide, 100 vol, 140 lb cbys.....lb.	.24	.26	.26	.24
.26	.24	.26	.24	Hypernic, 51°, 600 lb bbls....lb.	.12	.15	.15	.12
.15	.12	.15	.12	Indigo Madras, bbls.....lb.	1.28	1.30	1.30	1.28
1.30	1.28	1.30	1.28	20% paste, drums.....lb.	.15	.18	.18	.15
.18	.15	.18	.15	Synthetic, liquid.....lb.	.....	.12	.12	.12
.12	.12			Iron Chloride, see Ferric or Ferrous				
.10	.09	.10	.09	Iron Nitrate, kegs.....lb.	.09	.10	.10	.09
3.25	2.50	3.25	2.50	Coml, bbls.....100 lb.	2.50	3.25	3.25	2.50
.12	.10	.12	.10	Oxide, English.....lb.	.10	.12	.12	.10
.03½	.02½	.03½	.02½	Red, Spanish.....lb.	.02½	.03½	.03½	.02½
.90	.85	.90	.85	Isopropyl Acetate, 50 gal drs gal.	.85	.90	.90	.85
.18	.16	.20	.17	Japan Wax, 224 lb cases.....lb.	.....	.15½	.15½	.15½
70.00	60.00	70.00	60.00	Kieselguhr, 95 lb bgs NY....ton	60.00	70.00	70.00	60.00
13.50	13.00	.....	.....	Lead Acetate, bbls wks...100 lb.	13.00	13.50	13.50	13.00
14.50	14.00	13.50	13.00	White crystals, 500 lb bbls wks.....100 lb.	14.00	14.50	14.50	14.00
.15	.13	.15	.13	Arsenate, drs 1c-1 wks.....lb.	.13	.16	.16	.13
				Dithiofuroate, 100 lb dr....lb.	.....	1.00	1.00	1.00
7.75	6.10	6.25	6.25	Metal, c-l NY.....100 lb.	.....	7.75	7.75	6.10
.14	.14	.14	.14	Nitrate, 500 lb bbls wks....lb.	.....	.14	.14	.14
.18	.17½	.18	.17½	Oleate, bbls.....lb.	.17½	.18	.18	.17½
.08½	.08½	.08½	.08½	Oxide Litharge, 500 lb bbls.lb.	.....	.08½	.08¾	.08¾
.09½	.09½	.09¾	.09½	Red, 500 lb bbls wks....lb.	.....	.09¾	.09¾	.09¾
.09½	.09	.09	.09	White, 500 lb bbls wks...lb.	.....	.09¾	.09½	.09½
.08½	.08½	.08½	.08½	Sulfate, 500 lb bbls wk...lb.	.....	.08½	.08½	.08½
57.00	52.00			Leuna saltpetre, bags c.i.f. ..ton	.....	57.60	57.60	57.60
57.30	52.30			S. points c. i. f.....ton	.....	57.90	57.90	57.90
4.50	4.50	4.50	4.50	Lime, ground stone bags.....ton	.....	4.50	4.50	4.50
1.05	1.05	1.05	1.05	Live, 325 lb bbls wks...100 lb.	.....	1.05	1.05	1.05
				Lime Salts, see Calcium Salts				
.17	.15	.17	.15	Lime-Sulfur soln bbls.....gal.	.15	.17	.17	.15
.06½	.05½	.06½	.06½	Lithopone, 400 lb bbls 1c-1 wks .....lb.	.....	.05½	.05½	.05½
.08½	.08½	.08½	.08½	Logwood, 51°, 600 lb bbls.....lb.	.08½	.08½	.08½	.08½
.03½	.03	.03½	.03	Chips, 150 lb bags.....lb.	.03	.03½	.03½	.03
.12½	.12½	.12½	.12½	Solid, 50 lb boxes.....lb.	.....	.12½	.12½	.12½
26.00	24.00	27.00	26.00	Sticks.....ton	24.00	26.00	26.00	24.00
.08	.07½	.08	.07½	Lower grades.....lb.	.07½	.08	.08	.07½
.25	.22	.30	.30	Madder, Dutch.....lb.	.22	.25	.25	.22
60.00	50.00	50.00	48.00	Magnesite, calc, 500 lb bbl...ton	50.00	60.00	60.00	50.00
				Magnesium				
.06½	.06	.06½	.06	Magnesium Carb, tech, 70 lb bags NY.....lb.	06	.06½	.06½	.06

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Jan. 1930 $1.072

store. It is reported that demand is poor in France, with no demand in Great Britain, and little interest in future requirements from Germany. Supplies of kauri gum received into store at Auckland for the first 11 months of 1929 registered 3,819 tons, an excess of 61 tons over 1928 period and 333 tons more than in 1927. Gum exports from New Zealand during ten months of 1929 amounted to 4,235 tons, which figure is higher than the corresponding months of 1927 and 1928 when total shipments were respectively 3,823 and 3,636 tons. For 11 months of last year United States receipts of kauri gum aggregated 4,471,856 pounds as compared with 4,445,364 pounds for the 1928 period. Arrivals of copal gum at Antwerp from the Belgian Congo during November, according to the trade, amounted to 1,679 metric tons as against 1,023 tons in October and 1,126 tons in September. Export declarations showed November shipments to the United States from Antwerp were 486,690 pounds, bringing the total exports for the first eleven months up to 6,755,701 pounds.

Methanol—Strenuous price reductions have featured the past month in this market. Synthetic is now at 45c gal. in tanks, 48c gal. drums carlot, and 50c gal. drums less carlot; 95 per cent is at 43c gal. in tanks, 46c gal. drums carlot, and 48c gal. drums less carlot; pure is at 45c gal. in tanks, 48c gal. in drums carlot, and 50c @ 52c gal. in drums, less carlot. Synthetic material in tanks on contract for over 250,000 gallons per year is at 43c gal., while contract prices on less than that amount are at 44c gal. While tending to stabilize the market somewhat, the new prices have not stimulated business to such an extent that keen competitive conditions do not still exist. Crude methanol production in November totaled 705,320 gallons, compared with 719,064 gallons in October and 745,430 gallons in November, 1928, according to figures of the Department of Commerce. Refined methanol production was 488,212 gallons, against 445,183 gallons the preceding month and 536,782 gallons in November of the previous year. Acetate of lime output was 11,982,020 pounds, against 12, 531,508 pounds in October and 12,315,016 pounds in the previous November. Stocks at the end of November included 2,826,116 pounds of acetate of lime, compared with 1,687,404 pounds October 31; 273,097 gallons of crude methanol at crude plants and 615,852 gallons at refineries and in transit, against 255,204 gallons and 530, 710 gallons, respectively, and 755,326 gallons of refined methanol; against 725, 620 gallons. Canadian production for the month, as reported to the department,

1929 High	1929 Low	1928 High	1928 Low		Current Market		1930 High	1930 Low
				Chloride flake, 375 lb. drs c-l wks.....ton	.....	36.00	36.00	36.00
36.00	36.00	37.00	27.00	Imported shipment.....ton	.....	33.00	33.00	33.00
33.00	33.00	33.00	33.00	Fused, imp, 900 lb bbls NY ton	.....	31.00	31.00	31.00
31.00	31.00	31.00	31.00	Fluosilicate, crys, 400 lb bbls wks.....lb.	.10	.10½	.10½	.10
.10½	.10	.10½	.10	Oxide, USP, light, 100 lb bbls .....lb.	.....	.42	.42	.42
.42	.42	.42	.42	Heavy, 250 lb bbls.....lb.	.....	.50	.50	.50
.50	.50	.50	.50	Peroxide, 100 lb cs.....lb.	1.00	1.25	1.25	1.00
1.25	1.00	.....	.....	Silicofluoride, bbls.....lb.	.09½	.10½	.10½	.09½
.10½	.09½	.10½	.09½	Stearate, bbls.....lb.	.25	.26	.26	.25
.26	.25	.25	.23	Manganese Borate, 30%, 200 lb bbls.....lb.	.....	.19	.19	.19
.24	.19	.24	.24	Chloride, 600 lb casks.....lb.	.08	.08½	.08½	.08
.08½	.08	.08½	.08	Dioxide, tech (peroxide) drs lb.	.04½	.06	.06	.04½
.06	.04½	.....	.....	Ore, powdered or granular				
		.50	.35	75-80%, bbls.....lb.	.02½	.03	.03	.02½
.03½	.02½	.03½	.03	80-85%, bbls.....lb.	.....	.03½	.03½	.03½
.04½	.03½	.04½	.04	85-88%, bbls.....lb.	.04	.04½	.04½	.04
.05½	.04	.05½	.05	Sulfate, 550 lb drs NY.....lb.	.07	.08	.08	.07
.08½	.07	.07½	.07	Mangrove 55%, 400 lb bbls..lb.	.03½	Nom.	Nom.	.03½
Nom.	.03½	Nom.	.03½	Bark, African.....ton	.....	33.00	33.00	33.00
35.00	30.00	45.00	39 000	Marble Flour, bulk.....ton	14.00	15.00	15.00	14.00
15.00	14.00	12.00	10.00	Mercurous chloride .....lb.	.....	2.05	2.05	2.05
2.05	2.05			Mercury metal.....75 lb flask	124.00	124.50	124.50	124.00
126.00	120.00	132.00	121.00	Meta-nitro-aniline.....lb.	.67	.69	.69	.67
.74	.67	.74	.72	Meta-nitro-para-toluidine 200 lb. bbls.....lb.	1.50	1.55	1.55	1.50
1.55	1.50	1.80	1.50	Meta-phenylene-diamine 300 lb. bbls.....lb.	.80	.84	.84	.80
.90	.80	.94	.90	Meta-toluene-diamine, 300 lb bbls.....lb.	.67	.69	.69	.67
.72	.67	.74	.72					

Methanol

				Methanol, (Wood Alcohol),....				
.65	.51	.58	.46	95%.....gal.	.43	.48	.48	.43
.65	.53	.60	.47	97%.....gal.	.44	.49	.49	.44
.68	.53	.63	.44	Pure.....gal.	.45	.52	.52	.45
.66	.54	.58	.48	Synthetic.....gal.	.45	.50	.50	.45
.62	.55	.75	.45	Denat. gre. tanks.....gal.	.....	.45	.45	.45
.95	.95	.95	.95	Methyl Acetate, drums.....gal.	.....	Nom.	Nom.	Nom.
.85	.73	.90	.68	Acetone, 100 gal drums...gal.	.73	.77	.77	.73
.95	.85	.95	.85	Anthraquinone, kegs.....lb.	.85	.95	.85	.95
.....	.....	.....	.....	Cellosolve, (See Ethylene Glycol Mono Methyl Ether)	.....	.....	.....	.....
.60	.45	60	.55	Chloride, 90 lb cyl.....lb.	.45	.45	.45	.45
.50	.50			Furoate, tech., 50 gal. dr., lb.	.....	.50	.50	.50
80.00	65.00	80.00	65.00	Mica, dry grd. bags wks.....lb.	65.00	80.00	80.00	65.00
115.00	110.00	115.00	110.00	Wet, ground, bags wks.....lb.	110.00	115.00	115.00	110.00
3.00	3.00	.....	.....	Michler's Ketone, kegs.....lb.	.....	3.00	3.00	3.00
.75	.70	.75	.70	Monochlorobenzene, drums see, Chorobenzene, mono.....lb.	.70	.75	.75	.70
4.20	3.75	4.20	3.95	Monoethylorthotoluidin, drs. lb.	3.75	4.00	4.00	3.75
.07	.06½	.07	.06½	Monomethylparaminosufate 100 lb drums.....lb.	.06½	.07	.07	.06½
.04½	.03¾	.04½	.04½	Montan Wax, crude, bags....lb.	.03¾	.04½	.04½	.03¾
.08½	.05	.08½	.08	Myrobalans 25%, liq bbls....b	.05	.05½	.05½	.05
43.00	40.00	50.00	42.00	50% Solid, 50 lb boxes.....lb.	.....	41.00	41.00	41.00
40.00	26.50	40.00	32.50	J1 bags.....ton	.....	26.50	26.50	26.50
34.00	27.50	40.00	32.50	J 2 bags.....ton	.....	27.50	27.50	27.50
.18	.16	.18	.18	R 2 bags.....ton	.....	.16	.16	.16
.05½	.05½	.06	.05½	Naphtha, v. m. & p. (deodorized) bbls.....gal.	.....	.05½	.05½	.05½
.04½	.04½	.04½	.04½	Naphthalene balls, 250 lb bbls wks.....lb.	.....	.04½	.04½	.04½
.05	.05	.05	.05	Crushed, chipped bgs wks..lb.	.....	.05	.05	.05
.24	.20	.24	.21	Flakes, 175 lb bbls wks....lb.	.....	.20	.21	.20
.40	.37	.38	.35	Nickel Chloride, bbls kegs....lb.	.37	.40	.40	.37
.13	.13	.09½	.09	Oxide, 100 lb kegs NY.....lb.	.....	.13	.13	.13
.13	.13	.09	.08½	Salt bbl. 400 bbls lb NY...lb.	.....	.13	.13	.13
				Single, 400 lb bbls NY.....lb.				
1.30	1.25	1.30	1.25	Nicotine, free 40%, 8 lb tins, cases.....lb.	1.25	1.30	1.30	1.25
1.20	.98½	1.20	.98½	Sulfate, 10 lb tins.....lb.	.98½	1.20	1.20	.98½
18.00	12.00	14.00	13.00	Nitre Cake, bulk .....ton	14.50	18.00	18.00	14.50
.10½	.09	.10½	.10½	Nitrobenzene, redistilled, 1000 lb drs wks.....lb.	.09	.09½	.09½	.09
.36	.25	Nom.	.40	Nitrocellulose, c-l-l-cl, wks...lb.	.25	.36	.36	.25
4.00	3.40	4.00	3.35	Nitrogenous Material, bulk..unit	.....	3.40	3.40	3.40
.25	.25	.25	.25	Nitronaphthalene, 550 lb bbls.lb.	.....	.25	.25	.25
.15	.14	.15	.14	Nitrotoluene, 1000 lb drs wks.lb.	.14	.15	.15	.14
.16½	.16	Nom.	.25	Nutgalls Aleppy, bags.....lb.	.16	.16½	.16½	.16
.13	.12	.18	.17	Chinese, bags.....lb.	.12	.13	.13	.12
50.00	30.00	50.00	45.00	Oak Bark, ground.....ton	30.00	35.00	35.00	30.00
23.00	20.00	23.00	20.00	Whole.....ton	20.00	23.00	23.00	20.00
.13½	.11¾	.13½	.13	Orange-Mineral, 1100 lb casks NY.....lb.	.11¾	.13	.13	.11¾
2.25	2.15	2.25	2.20	Orthoaminophenol, 50 lb kgs..lb.	2.15	2.25	2.25	2.15
2.60	2.50	2.50	2.35	Orthoanisidine, 100 lb drs....lb.	2.50	2.60	2.60	2.50
.65	.50	.65	.50	Orthochlorophenol, drums....lb.	.50	.65	.65	.50
.28	.18	.28	.18	Orthocresol, drums.....lb.	.18	.28	.28	.18
.10	.07	.07	.06	Orthodichlorobenzene, 1000 lb drums.....lb.	.07	.10	.10	.07
.33	.30	.35	.32	Orthonitrochlorobenzene, 1200 lb drs wks.....lb.	.30	.33	.33	.30
.18	.16	.18	.17	Orthonitrotoluene, 1000 lb drs wk.....lb.	.16	.18	.18	.16
.90	.85	.90	.85	Orthonitrophenol, 350 lb dr...lb.	.85	.90	.90	.85
.30	.25	.31	.29	Orthotoluidine, 350 lb bbl 1c-1 lb.	.25	30	.30	.25

Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Jan. 1930 $1.072

included 1,026,948 pounds of acetate of lime, against 1,241,807 pounds in November, 1928; 45,242 gallons of crude methanol, against 53,146 gallons, and 58,150 gallons of refined methanol, against 39,500 gallons.

Nitrogenous Material—Business in this material has been very inactive and the first month is far behind those of many previous years. Prices are at $3.40 per unit in a market which has been weak.

Phenol—Conditions in this market are once more strictly routine in nature and producers are awaiting a general revival of business to restore more active business in this commodity.

Potassium Chlorate—Has been very firm and in good demand. Imports for the first eleven months of 1929 amounted to about 12,300,000 pounds, somewhat ahead of the preceding year's, but the demand has been sufficiently strong and sustained to prevent these heavy imports from affecting the market.

Rosin—Demand has been rather spotty during the past month and prices have fluctuated accordingly. As compared with the last prices reported, the middle grades are higher, while both high and low grades are lower than when last quoted. There has been no concerted demand and as a matter of fact, comparatively few offerings.

Salt Cake—It is reported that domestic producers are sold up on this material, and the market is increasingly firm since there have been no offerings of foreign material.

Shellac—Some little business has developed in this market during the past month which is in a sense a recovery from what was almost an absence of business during December. Prices have been fairly steady and quotations are as follows: Bone dry, 47c lb.; garnet, 40c lb.; superfine, 39c lb.; and T. N., 34c lb. Shellac imports during the month of November, 1929, amounted to 1,823,745 pounds valued at $724,484, according to the Department of Commerce. Those of crude, seed and button lac aggregated 535,172 pounds worth $172,624. British India, of course, was by far the largest exporter of each of these, although Germany sent over a considerable quantity of shellac, 173,116 pounds with a value of $68,574 coming from there. The German shellac was undoubtedly a comparatively cheap grade of bleached that has offered competition to the home product. Exports of shellac from India for the seven months, April to October, inclusive, of the fiscal year 1928-29 amounted to 336,494 hundredweight (112 pounds), valued at 41, 104,915 rupees (1 rupee—$0.3634 United States currency). The United States was the largest consumer, taking 188,412 hundredweight, value 22,667,595 rupees;

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
				Orthonitroparachlorphenol, tins			
.75	.70	.75	.70	lb.	.70	.75	.75	.70
.17	.16	.17	.16	**Osage Orange, crystals** lb.	.16	.17	.17	.16
.07½	.07	.07	.07	51 deg. liquid lb.	.07	.07½	.07½	.07
.15	.14½	.15	.14½	Powdered, 100 lb bags lb.	.14½	.15	.15	.14½
				Paraffin, refd, 200 lb cs slabs			
.06½	.04½	.06½	.06½	123-127 deg. M. P. lb.	.04½	.04½	.04½	.04½
.07	.04½	.07½	.07½	128-132 deg. M. P. lb.	.04½	.06½	.06½	.04½
.07½	.06½	.08½	.08	133-137 deg. M. P. lb.	.06½	.07½	.07½	.06½
.28	.20½	.28	.20½	**Para Aldehyde, 110-55 gal drs.** lb.	.20½	.23	.23	.20½
1.65	1.00	1.05	1.00	**Aminoacetanilid, 100 lb bg.** lb.	1.00	1.05	1.05	1.00
				Aminohydrochloride, 100 lb				
1.30	1.25	1.30	1.25	kegs lb.	1.25	1.30	1.30	1.25
1.15	.99	1.15	1.15	**Aminophenol, 100 lb kegs** lb.	.99	1.02	1.02	.99
.65	.50	.65	.50	**Chlorophenol, drums** lb.	.50	.65	.65	.50
.....	.....	.....	.....	**Coumarone, 330 lb drums** lb.	.....	.....	.....	.....
2.50	2.25	2.50	2.25	**Cymene, refd, 110 gal dr.** gal.	2.25	2.50	2.50	2.25
				Dichlorobenzene, 150 lb bbls				
.20	.17	.20	.17	wks lb.	.17	.20	.20	.17
.55	.50	.55	.50	**Nitroacetanilid, 300 lb bbls** lb.	.50	.55	.55	.50
				Nitroaniline, 300 lb bbls wks				
.55	.48	.59	.48	lb.	.48	.55	.55	.48
				Nitrochlorobenzene, 1200 lb drs				
.26	23	.32	.32	wks lb.	.23	.26	.26	.23
				Nitro-orthotoluidine, 300 lb				
2.85	2.75	2.85	2.75	bbls lb.	2.75	2.85	2.85	2.75
.55	.45	.55	.50	**Nitrophenol 185 lb bbls** lb.	.45	.50	.50	.45
				Nitrosodimethylaniline, 120 lb.				
.94	.92	.94	.92	bbls lb.	.92	.94	.94	.92
.31	.29	.30	.30	**Nitrotoluene, 350 lb bbls** lb.	.29	.31	.31	.29
				Phenylenediamine, 350 lb bbls				
1.20	1.15	1.20	1.15	lb.	1.15	1.20	1.20	1.15
				Toluenesulfonamide, 175 lb				
.75	.70	.41	.40	bbls lb.	.70	.75	.75	.70
				Toluenesulfonchloride, 410 lb				
.22	.20	.22	.20	bbls wks lb.	.20	.22	.22	.20
.42	.38	.42	.40	**Toluidine, 350 lb bbls wk.** lb.	.38	.40	.40	.38
				Paris Green, Arsenic Basis				
.27	25	.25	.20	100 lb kegs lb.	.....	.27	.27	.27
.25	.23	.23	.17	250 lb kegs lb.	.....	.25	.25	.25
.25	.25	.....	.....	**Persian Berry Ext., bbls** lb.	.25	Nom.	Nom.	.25
.02½	.02	.03	.02½	**Petrolatum, Green, 300 lb bbl.** lb.	.02	.02½	.02	.02
.16	.13	.13	.20	**Phenol, 250-100 lb drums** lb.	.14½	.15	.15	.14½
				Phenyl - Alpha - Naphthylamine,				
1.35	1.35	1.35	1.35	100 lb kegs lb.	.....	1.35	1.35	1.35

Phosphate

				Phosphate Acid (see Superphosphate)				
				Phosphate Rock, f.o.b. mines				
3.15	3.00	3.15	3.00	Florida Pebble, 68% basis. ton	3.00	3.15	3.15	3.00
4.00	3.50	3.65	3.50	70% basis ton	3.75	4.00	4.00	3.75
4.50	4.00	4.15	4.00	72% basis ton	4.25	4.50	4.50	4.25
5.50	5.00	5.00	5.00	75-74% basis ton	5.25	5.50	5.50	5.25
5.75	5.75	5.75	5.75	75% basis ton	.....	5.75	5.75	5.75
6.25	6.25	6.25	6.25	77-76% basis ton	.....	6.25	6.25	6.25
5.00	5.00	5.00	5.00	Tennessee, 72% basis ton	.....	5.00	5.00	5.00
				Phosphorous Oxychloride 175 lb				
.40	.20	.40	.35	cyl lb.	.20	.25	.25	.20
.60	.37½	.65	.60	Red, 110 lb cases lb.	.37½	.42	.42	.37½
.32	.31	.32	.32	Yellow, 110 lb cases wks. lb.	.31	.37½	.37½	.31
.46	.44	.46	.46	**Sesquisulfide, 100 lb cs.** lb.	.....	.44	.44	.44
.35	.20	.....	.....	Trichloride, cylinders lb.	.20	.25	.25	.20
				Phthalic Anhydride, 100 lb bbls				
.20	.18	.20	.18	wks lb.	.18	.20	.20	.18
				Pigments Metallic, Red or brown				
45.00	37.00	45.00	37.00	bags, bbls, Pa. wks ton	37.00	45.00	45.00	37.00
				Pine Oil, 55 gal drums or bbls				
.64	.63	.64	.63	Destructive dist. lb.	.63	.64	.64	.63
10.60	8.00	10.60	8.00	Prime bbls. bbl.	8.00	10.60	10.60	8.00
.70	.65	.70	.70	Steam dist. bbls. gal.	.65	.70	.70	.65
				Pitch Hardwood,				
45.00	40.00	45.00	40.00	wks ton	40.00	45.00	45.00	40.00
				Plaster Paris, tech, 250 lb bbls				
3.50	3.30	3.30	3.30	bbl.	3.30	3.50	3.50	3.30

Potash

.07½	.06½	.07½	.07½	**Potash, Caustic, wks, solid** lb.	.06½	.06½	.06½	.06½
.07½	.0705	.07½	.07½	flake lb.	.0705	.08	.08	.0705
				Potash Salts, Rough Kainit				
9.10	9.00	9.00	9.00	12.4% basis bulk ton	.....	9.10	9.10	9.10
9.60	9.50	9.50	9.50	14% basis ton	.....	9.60	9.60	9.60
				Manure Salts				
12.50	12.40	12.40	12.40	20% basis bulk ton	.....	12.50	12.50	12.50
18.95	18.75	18.75	18.75	30% basis bulk ton	.....	18.95	18.95	18.95
				Potassium Muriate, 80% basis				
36.75	36.40	36.40	36.40	bags ton	.....	36.75	36.75	36.75
				Pot. & Mag. Sulfate, 48% basis				
27.50	27.00	27.00	27.00	bags ton	.....	27.50	27.50	27.50
				Potassium Sulfate, 90% basis				
47.75	47.30	47.30	47.30	bags ton	.....	47.75	47.75	47.75
				Potassium Bicarbonate, USP, 320				
.14	.09½	.09½	.09	lb bbls lb.	.09½	.10	.10	.09½
				Bichromate Crystals, 725 lb				
.09½	.09	.09½	.08½	casks lb.	.09	.09½	.09½	.09
.13½	.13	.12½	.12	**Powd., 725 lb cks wks.** lb.	.13	.13½	.13½	.13

Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Jan. 1930 $1.072

the United Kingdom came second, receiving 64,398 hundredweight, value 7,970, 162 rupees; while Germany, an important destination, took 37,346 hundredweight, for a value of 4,570,551 rupees. United States receipts of shellac for 11 months of 1928 and 1929 indicated an advance from 22,019,900 pounds to 31,709,349 pounds for last year. Imports of varnish gums were led by dammar, of which 1,471,527 pounds valued at $172,833 entered the United States during November. Kauri imports reached 272,017 pounds worth $50,062. The influx of all other varnish gums attained an aggregate of 2,697,399 pounds valued at $213,935.

Soda Ash—The past month opened very inauspiciously in this market. For the first two weeks business was almost at a standstill but the closing weeks of the month witnessed a strong revival of business which brought the level for January almost up to that of January of last year.

Soda Caustic—As in the market for soda ash, the first two weeks of the past month were very quiet but after that business returned to a high level of activity. Thus the past month's business has been well ahead of December, 1929, ahead of January, 1928, but not quite up to the level of January, 1929. It is predicted that February will be a good month and that business should come very close to approximating the level for February of last year. The reduced business was general and applied to all lines of business into which the alkalis go. Similarly, the revival was also general and uniform in all industries, so that conditions are looking better in every line.

Sodium Chlorate—Although it is still somewhat early for this demand to be felt, it is expected that when it develops it will be very heavy with possibilities of rather tight conditions arising.

Sodium Nitrate—Business continues to be very light although prices are fairly well maintained and producers expect a larger volume of business for the coming season that for the previous year. Production of nitrate of soda by the 68 operating oficinas amounted to 261,000 metric tons in November, 1929, as compared with 208,600 tons for the same month of 1928. Exports for November, 1929, totaled 249,000 tons against 286,000 for the same month of the previous year. World stocks reached 2,454,600 tons as compared with 1,995,500 in 1928.

Sodium Sulfide—Continues very strong as the raw material grows increasingly scarce.

Toluene—Prices on this material were lowered 5c gal. during the past month to a basic price of 35c gal. in tanks and 40c gal. in drums. This reduction was with

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
.17	.14	.17	.16	Binoxiate, 300 lb bbls.....lb.	.14	.17	.14
.30	.30	.30	.30	Bisulfate, 100 lb kegs.....lb.	.....	.30	.30
.05½	.05½	.05½	.05½	Carbonate, 80-85% calc. 800 lb casks.....lb.	.05½	.05½	.05½
.09	.08½	.09	.06½	Chlorate crystals, powder 112 lb keg wks .....lb.	.08½	.09	.09
.05½	.05½	.05½	.05½	Chloride, crys bbls.....lb.	.05½	.06	.06
.28	.23	.28	.27	Chromate, kegs.....lb.	.23	.28	.28
.57½	.55	.57½	.55	Cyanide, 110 lb. cases.....lb.	.55	.57½	.57½
.13	.11½	.12	.11½	Metabisulfite, 300 lb. bbl...lb.	.12	.13	.13
.24	.16	.17	.16	Oxalate, bbls.....lb.	.20	.24	.24
.12	.11	.12	.11	Perchlorate, casks wks.....lb.	.11	.12	.12
.16½	.16	.15½	.15	Permanganate, USP, crys 500 & 100 lb drs wks.....lb.	.16	.16½	.16½
.40	.38	.38	.37	Prussiate, red, 112 lb keg...lb.	.38	.40	.40
.21	.18½	.18½	.18	Yellow, 500 lb casks.....lb.	.18½	.21	.21
.51	.51	.51	.51	Tartrate Neut, 100 lb keg..lb.	.....	.21	.21
.25	21	.25	.25	Titanium Oxalate, 200 lb bbls .....lb.	.21	.23	.23
5.00	5.00	..	...	Propyl Furoate, 1 lb tins....lb.	....	5.00	5.00
.05	.04	.05	.04	Pumice Stone, lump bags.....lb.	.04	.05	.05
.06	.04½	.06	.04½	250 lb bbls.....lb.	.04½	.06	.06
.03	.02½	.03	.02½	Powdered, 350 lb bags.....lb.	.02½	.03	.03
.03½	.03½	.03½	.03½	Putty, commercial, tubs..100 lb.	.....	.03½	.03½
.05½	.05½	.05½	.05½	Linseed Oil, kegs.....100 lb.	.....	.05½	.05½
1.75	1.50	1.50	1.50	Pyridine, 50 gal drums.....gal.	.....	1.75	1.75
.13½	.13	.13	.13	Pyrites, Spanish cif Atlantic ports bulk.....unit	.13	13½	.13½
.04	.03	.04	.03	Quebracho, 35% liquid tks....lb.	.03	.04	.04
.04½	.03½	.04	.03½	450 lb bbls c-1.....lb.	.03½	.03½	.03½
.04½	.05½	.05	.04	35% Bleaching, 450 lb bbl .lb.	.04½	.05½	.04½
.05½	.05½	.05	.05	Solid, 63%, 100 lb bales cif..lb.	.05	.05½	.05½
.05½	.05½	.05	.05	Clarified, 64%, bales.....lb.	.....	.05½	.05½
.06	.05½	.06	.05½	Quercitron, 51 deg liquid 450 lb bbls.....lb.	.05½	.06	.06
.13	.10	.13	.10	Solid, 100 lb boxes.....lb.	.10	.13	.13
14.00	14.00	14.00	14.00	Bark, Rough.....ton	.....	14.00	14.00
35.00	34.00	35.00	34.00	Ground.....ton	34.00	35.00	35.00
.46	.44	.46	.45	R Salt, 250 lb bbls wks.....lb.	.44	.45	.45
.18	.18	....	....	Red Sanders Wood, grd bbls..lb.	.....	.18	.18
1.25	1.15	1.35	1.25	Resorcinol Tech, cans.....lb.	1.15	1.25	1.25
.62	.57	.57	.57	Rosin Oil, 50 gal bbls, first run .....gal.	.57	.58	.58
.64	.60	.62	.62	Second run.....gal.	.60	.61	.61

Rosin

				Rosins 600 lb bbls 280 lb...unit			
9.25	7.45	9.75	8.20	B.....	.....	7.75	7.75	7.75
9.25	7.70	9.80	8.25	D.....	.....	8.00	8.00	8.00
9.27	8.30	9.95	8.60	E.....	.....	8.17	8.17	8.17
9.27	8.40	10.10	8.65	F.....	.....	8.32	8.32	8.32
9.45	8.40	10.10	8.75	G.....	.....	8.37	8.37	8.37
9.50	8.40	10.10	8.75	H.....	.....	8.40	8.40	8.40
9.50	8.40	10.15	8.80	I.....	.....	8.47	8.47	8.47
9.55	8.45	10.15	8.85	K.....	.....	8.47	8.47	8.47
9.85	8.50	10.30	8.85	M.....	.....	8.80	8.80	8.80
10.30	8.93	11.00	9.15	N.....	.....	8.80	8.80	8.80
11.30	9.00	11.65	10.15	WG.....	.....	9.25	9.25	9.25
12.30	9.30	12.65	10.40	WW.....	.....	9.85	9.85	9.85
30.00	24.00	30.00	24.00	Rotten Stone, bags mines....ton	24.00	30.00	30.00	24.00
.08	.05	.08	.07	Lump, imported, bbls.....lb.	.05	.07	.07	.05
.12	.09	.12	.09	Selected bbls.....lb.	.09	.12	.12	.09
.05	.02	.05	.02	Powdered, bbls.....lb.	.02	.05	.05	.02
.05	.04½	.05	.04½	Sago Flour, 150 lb bags.....lb.	.04½	.05	.05	.04½
1.00	1.00	.....	.....	Sal Soda, bbls wks.....100 lb.	.....	1.00	1.00	1.00
24.00	19.00	20.00	19.00	Salt Cake, 94-96% c-1 wks. .ton	20.00	24.00	24.00	20.00
21.00	12.00	17.00	15.00	Chrome .....ton	20.00	21.00	21.00	20.00
.06½	.06½	.06½	.06½	Saltpetre, double refd granular 450-500 lb bbls.....lb.	.06½	.06½	.06½	.06½
.01½	.01½	.01½	.01½	Satin, White, 500 lb bbls.....lb	.....	.01½	.01½	.01½
.61	.47	.62½	.49	Shellac Bone dry bbls.....lb.	.....	.47	.47	.47
.45	.40	.55	.45	Garnet, bags.....lb.	.....	.40	.40	.40
.47	.39	.58	.47	Superfine, bags.....lb.	.....	.39	.39	.39
.44	.36	.55	.42	T. N. bags.....lb.	.....	.34	.34	.34
.57	.53	.57	.53	Schaeffer's Salt, kegs.....lb.	.53	.57	.57	.53
11.00	8.00	11.00	8.00	Silica, Crude, bulk mines....ton	8.00	11.00	11.00	8.00
30.00	22.00	30.00	22.00	Refined, floated bags.....ton	22.00	30.00	30.00	22.00
32.00	32.00	.....	.....	Air floated bags.....ton	.....	32.00	32.00	32.00
40.00	32.00	40.00	32.00	Extra floated bags.....ton	32.00	40.00	40.00	32.00
22.00	15.00	22.00	15.00	Soapstone, Powdered, bags f. o. b. mines.....ton	15.00	22.00	22.00	15.00

Soda

				Soda Ash, 58% dense, bags c-1 wks.....100 lb.	.....	1.40	1.40	1.40
1.40	1.40	1.40	1.40	58% light, bags.....100 lb.	.....	1.34½	1.34½	1.34½
1.34½	1.34½	2.29	2.40	Contract, bags c-1 wks.100 lb.	.....	1.32	1.32	1.32
1.32	1.32	1.32½	1.32½	Soda Caustic, 76% grnd & flake drums.....100 lb.	.....	3.35	3.35	3.35
3.35	3.35	4.21	4.16	76% solid drs.....100 lb.	.....	2.95	2.95	2.95
2.95	2.95	3.91	3.76	Contract, c-1 wks.....100 lb.	.....	2.90	2.90	2.90
2.90	2.90	3.00	3.00	Sodium Acetate, tech....450 lb. bbls wks.....lb.	.04	.05½	.05½	.04
.06½	.04½	.05	.04½	Arsenate, drums.....lb.	.18	.19	.19	.18
.19	.18	.....	.....	Arsenite, drums.....gal.	.75	1.00	1.00	.75
1.50	.75	.....	.....	Bicarb, 400 lb bbl NY..100 lb.	.....	2.41	2.41	2.41
2.41	2.41	2.41	2.41					

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Jan. 1930 $1.072

the idea of stimulating business among lacquer manufacturers, who had been turning to substitutes whenever possible because of comparatively high price level of this material. Business is said to have increased since the reduction as consumers are beginning to increase lacquer production in anticipation or more active operations.

Turpentine—Has been very dull during the past month due chiefly to lack of business in the paint trade. Prices have fluctuated back and forth but are at practically the same level as when last reported with spirits at 53½c @ 59½c gal. and wood distilled at 50c gal.

Xylene—Producers have lowered prices during the past month to a basis of 28c @ 33c gal. on commercial and 31c gal. on 10 degree.

OILS AND FATS

Chinawood Oil — In common with most of the oils and fats, the past month has witnessed a sharp drop in Chinawood oil prices. The slump reached its peak about the middle of the month and towards the close, conditions seemed somewhat firmer all around. Conditions in the tung oil market were accentuated by the accompanying sharp drop in the Oriental rate of exchange. Silver went very low and prices on this oil in the domestic market dropped accordingly. The net decline since last reported amounts to about 1c lb. but again it must be emphasized that this represents a degree of recovery from previously existing lows. November imports of tung oil aggregated 6,035,560 pounds, valued at $740,395 as compared with 7,014,942 pounds, valued at $1,141,625 for November, 1928. For 11 months this year imports were in excess of those of the same period of last year attaining a total of 112,344,383 pounds, value $14,057,179 as against 96,327,381 pounds, having a value of $12,037,522 during 11 months of 1928. Shipments of oil from Hankow to the United States represent about 83 per cent of the total eleven months imports. Total exports of tung oil from Shanghai to the United States during eleven months of 1929 reached 4,215,800 pounds, for a value of $488,800.

Coconut Oil—The middle of the past month witnessed a sharp decline in prices for this material but despite, rather light trade, the closing weeks found a marked recovery and added firmness on all grades. As a result, prices are at about the same level as when last quoted, the recovery having made up for the ground which

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
.07½	.07	.07	.06½	Bichromate, 500 lb cks wks..lb.	.07	.07½	.07½	.07
.04	.04	.04	.04	Bisulfite, 500 lb bbl wks....lb.	.....	.04	.04	.04
1.35	1.30	1.35	1.30	Carb. 350 lb bbls NY..100 lb.	1.30	1.35	1.35	1.30
.11	.06½	.06½	.05½	Chlorate, ... wks..lb.	.07½	.08	.08	.07½
13.00	12.00	13.00	12.00	Chloride, technical.....ton	12.00	13.00	13.00	12.00
				Cyanide, 96-98%, 100 & 250 lb				
.20	.18	.20	.20	drums wks.....lb.	.18	.20	.20	.18
.09	.08½	.09	.08½	Fluoride, 300 lb bbls wks...lb.	.08½	.09	.09	.08½
				Hydrosulfite, 200 lb bbls f. o. b.				
.24	.22	.24	.22	wks.....lb.	.22	.24	.24	.22
				Hypochloride solution, 100 lb				
.05	.05	.05	.05	cbys.....lb.	.....	.05	.05	.05
				Hyposulfite, tech, pea cyrs				
3.05	2.50	3.05	2.65	375 lb bbls wks.....100 lb.	2.50	3.00	3.00	2.50
				Technical, regular crystals				
2.65	2.40	2.65	2.40	375 lb bbls wks....100 lb.	2.40	2.65	2.65	2.40
.45	.45	.45	.45	Metanilate, 150 lb bbls.... lb.	.....	.45	.45	.45
.02½	.02½	.....	.....	Monohydrate, bbls.....lb.	.....	.02½	.02½	.02½
.57	.54	57	.55	Naphthionate, 300 lb bbl...lb.	.54	.57	.57	.54
				Nitrate, 92%, crude, 200 lb				
2.22½	2.09	2.45	2.12½	bags c-1 NY.....100 lb.	2.16	2.22½	2.22½	2.16
.08	.07½	.08½	.07½	Nitrite, 500 lb bbls spot....lb.	.07½	.08	.08	.07½
				Orthochlorotoluene, sulfonate,				
.27	.25	.27	.25	175 lb bbls wks.....lb.	.25	.27	.27	.25
.42	.37	.23	.20	Oxalate Neut, 100 lb kegs..lb.	.37	.42	.42	.37
.22	.18	.22	.21	Perborate, 275 lb bbls.....lb.	.18	.20	.20	.18
				Phosphate, di-sodium, tech.				
3.55	3.25	3.55	3.25	310 lb bbls.....100 lb.	3.00	3.25	3.25	3.00
				tri-sodium, tech, 325 lb				
4.00	3.90	.....	.....	bbls.....100 lb.	3.60	4.00	4.00	3.60
.72	.69	.72	.69	Picramate, 100 lb kegs.....lb.	.69	.72	.72	.69
				Prussiate, Yellow, 350 lb bbl				
.12½	.12	.12½	.12	wks.....lb.	.12	.12½	12½	.12
.20	.15	.14	.13½	Pyrophosphate, 100 lb keg..lb.	.15	.20	.20	.15
				Silicate, 60 deg 55 gal drs, wks				
1.65	1.65	1.45	1.20	.....100 lb.	.....	1.65	1.65	1.65
				40 deg 55 gal drs, wks				
.80	.70	1.10	.85	.....100 lb.	.70	.80	.80	.70
				Silicofluoride, 450 lb bbls NY				
.05½	.05	.05	.05	.....lb.	.05½	.05½	.05½	.05½
.43	.38	.49	.48½	Stannate, 100 lb drums....lb.	.....	.38	.43	.38
.29	.25	.29	.18	Stearate, bbls.....lb.	.25	29	.29	.25
.18	.16	.18	.16	Sulfanilate, 400 lb bbls.....lb.	.16	.18	.18	.16
				Sulfate Anhyd, 550 lb bbls				
.02½	.02½	.02½	.02½	c-1 wks.....lb.	.02½	.02½	.02½	.02½
				Sulfide, 80% crystals, 440 lb				
.02½	.02½	02½	.02½	bbls wks.....lb.	.02½	.02½	.02½	.02½
				62% solid, 650 lb drums				
.04	.03½	.04	.03½	lc-1 wks.....lb.	.03	.03½	.03½	.03
				Sulfite, crystals, 400 lb bbls				
.03½	.03	.03½	.03½	wks.....lb.	.03	.03½	.03½	.03
.76	.28½	.50	.40	Sulfocyanide, bbls.....lb.	.28	.35	.35	.28
				Tungstate, tech, crystals, kegs				
1.40	.88	.85	.80	.....lb.	.....	.88	.88	.88
				Solvent Naphtha, 110 gal drs				
.40	.35	.40	.35	wks.....gal.	.35	.40	.40	.35
.01½	.01½	.01½	.01½	Spruce, 25% liquid, bbls.....lb.	.....	.01½	.01½	.01½
.01	.01	.01	.01	25% liquid, tanks wks.....lb.	.....	.01	.01	.01
.02½	.02	.02½	.02	50% powd, 100 lb bag wks lb.	.02	.02½	.02½	.02
				Starch, powd., 140 lb bags				
4.12	3.82	4.42	3.07	.....100 lb.	3.82	4.02	4.02	3.82
4.02	3.72	4.32	2.97	Pearl, 140 lb bags.....100 lb.	3.72	3.92	3.92	3.72
.06½	.05½	.06½	.05½	Potato, 200 lb bags.....lb.	.05½	.06½	.06½	.05½
.06½	.05½	.06½	.05½	Imported bags.....lb.	.05½	.06½	.06½	.05½
.08½	08	.08½	.08	Soluble.....lb.	.08	.08½	.08½	.08
.10	.09½	.10	.09½	Rice, 200 lb bbls.....lb.	.09½	.10	.10	.09½
.07	.06½	.07	.06½	Wheat, thick bags.....lb.	.06½	.07	.07	.06½
.10	.09½	.10	.09½	Thin bags.....lb.	.09½	.10	.10	.09½
				Strontium carbonate, 600 lb bbls				
.07½	.07½	.07½	.07½	wks.....lb.	.07½	.07½	.07½	.07½
.09½	.08½	.09	.08½	Nitrate, 600 lb bbls NY....lb.	.09	.09½	.09½	.09
1.25	1.25	.....	.....	Peroxide, 100 lb drs.....lb.	.....	1.25	1.25	1.25

Sulfur

				Sulfur Brimstone, broken rock,				
2.05	2.05	2.05	2.05	250 lb bag c-1.....100 lb.	.....	2.05	2.05	2.05
19.00	18.00	19.00	18.00	Crude, f. o. b. mines.....ton	18.00	19.00	19.00	18.00
				Flour for dusting 99½%, 100				
2.40	2.40	2.40	2.40	lb bags c-1 NY....100 lb.	.....	2.40	2.40	2.40
2.50	2.50	2.50	2.50	Heavy bags c-1.....100 lb.	.....	2.50	2.50	2.50
				Flowers, 100%, 155 lb bbls c-1				
3.45	3.45	3.45	3.45	NY.....100 lb.	.....	3.45	3.45	3.45
2.85	2.65	2.85	2.65	Roll, bbls 1c-1 NY.....100 lb.	2.65	2.85	2.85	2.65
				Sulfur Chloride, red, 700 lb drs				
.05½	.05	.05½	.05	wks.....lb.	.05	.05½	.05½	.05
.04½	.03½	.04½	.03½	Yellow, 700 lb drs wks.....lb.	.03½	.04½	.04½	.03½
.08½	.07	.08½	.08	Sulfur Dioxide, 150 lb cyl....lb.	.07	.07½	.07½	.07
.19	.10	.19	.17	Extra, dry, 100 lb cyl.....lb.	.10	.12	.12	.10
.65	.10	.65	.10	Sulfuryl Chloride, 600 lb dr...lb.	.10	.65	.65	.10
15.00	12.00	15.00	12.00	Talc, Crude, 100 lb bgs NY...ton	12.00	15.00	15.00	12.00
18.00	16.00	18.00	16.00	Refined, 100 lb bgs NY..ton	16.00	18.00	18.00	16.00
25.00	18.00	35.00	30.00	French, 220 lb bags NY...ton	18.00	22.00	22.00	18.00
45.00	35.00	45.00	38.00	Refined, white, bags....ton	35.00	40.00	40.00	35.00
50.00	40.00	50.00	40.00	Italian, 220 lb bags NY...ton	40.00	50.00	50.00	40.00
55.00	50.00	55.00	50.00	Refined, white, bags....ton	50.00	55.00	55.00	50.00
				Superphosphate, 16% bulk,				
10.00	9 00			wks..... ton	.....	9.50	9.50	9.50
4.50&10	4.00&10	5.10&10	4.65&10	Tankage Ground NY.....unit	.....	4.00&10	4.00&10	4.00&10
4.80&10	3.75&10	4.80&10	3.90&10	High grade f.o.b. Chicago.unit	.....	3.75&10	3.75&10	3.75&10
4.80&10	4.35&10	5.00&10	4.60&10	South American cif.....unit	.....	4.25&10	4.25&10	4.25&10
.05½	.04½	.05	.04½	Tapioca Flour, high grade bgs..lb.	.05½	.05½	.05½	.05½
.04½	.03½	.04	.03½	Medium grade, bags.....lb.	.04½	.04½	.04½	.04½
.27	.26	.27	.26	Tar Acid Oil, 15%,drums....gal.	.26	.27	.27	.26
.30	.29	.30	.29	25% drums.....gal.	.29	.30	.30	.29

was lost during the middle of the month. Importers are confident that the recovery is a permanent one and at present all grades are quite firm at quoted levels.

Cod Oil—As this material grows increasingly scarce, prices tend to rise accordingly. Quotations are now at 56c gal. in barrels and 62c gal. tanked.

Copra—Prices on this material show a decidedly rising tendency. Trouble with copra in the Philippines has lead to a turning to Europe for the material, and prices there are very high. Quotations are at 4.6c lb.

Corn Oil—Has grown scarcer during the past month as less grain has been ground for starch and glucose. As a result, prices are higher in accordance with smaller stocks. Crude is quoted at 8c lb. in tanks and 10c lb. in barrels, while refined is at 9½c lb. in tanks and 10½c lb. in barrels.

Cottonseed Oil—Has maintained a fairly steady level during the past month. Trading has been light and prices are at practically the same level as when last quoted, although crude is higher at 7¼c lb. Bureau of Census, Department of Commerce, issued the following report, covering the period from August to December 31, 1929: Cotton seed: received at mills, excluding reshipments, 3,976,671 tons; crushed, 2,911,711 tons. Production: crude oil 898,517,963 pounds; refined 719,149,825 pounds; cake and meal 1,292,827 tons; hulls 798,372 tons; linters 601,027 bales; hull fiber 33,537 bales. Stocks on hand December 31: seed (at plants) 1,106,566 tons; crude oil 116,150,428 pounds; refined 422,335,138 pounds.

Lard Oil—In common with most of the other members of the animal group, there has been a decided decline in prices of this material. Stocks have been rather abundant and demand light so that all grades are lower: prime at 13½c lb., extra at 12c lb., and extra No. 1 at 11c lb.

Linseed Oil—Unusual dullness has characterized this market during the past month. Prices slumped tremendously and present quotations represent a recovery from lower levels which existed during the middle of the month. Even so, present quotations are six points under the level as last quoted. Even these prices may be shaded two points on firm bids and but few sales have been reported. Despite bullish reports on the supplies of flaxseed in the world, there has been no noticeable reaction on the part of buyers, although it is maintained that this condition is bound to have its effect sooner or later.

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
				Terra Alba Amer. No. 1, bgs or			
1.75	1.15	1.75	1.15	bbls mills.....100lb.	1.15	1.75	1.75	1.15
2.00	1.50½	2.00	1.50	No. 2 bags or bbls...100lb.	1.50	2.00	2.00	1.50
.02½	.01	.02½	.02	Imported bags.....lb.	.01½	.01½	.01½	.01½
.09½	.09	.....	.....	Tetrachlorethane, 50 gal dr...lb.	.09	.09½	.09½	.09
.20	.20	.20	.20	Tetralene, 50 gal drs wks.....lb.	.....	.20	.20	.20
.24	.22	.24	.22	Thiocarbanilid, 170 lb bbl....lb.	.22	.24	.24	.22
				Tin Bichloride, 50% soln, 100 lb				
.14½	.13½	.17½	.14½	bbls wks.....lb.	.....	.12½	.12½	.12½
.38	.33	.41½	.36½	Crystals, 500 lb bbls wks...lb.	.31½	.34	.34	.31½
.48	.39	.58	.48	Metal Straits NY.....lb.	.....	.38	.38	.38
.56	.42	.75	53	Oxide, 300 lb bbls wks.....lb.	.....	.42	.42	.42
				Tetrachloride, 100 lb drs wks.				
.30½	.27½	.35½	.30½	.....lb.	.....	.25½	.25½	.25½
.50	.22	.40	.40	Titanium Dioxide 300 lb bbl..lb	.22	.....	.50	.22
.14	.07½	.14	.13½	Pigment, bbls.....lb.	.07½	.07½	.07½	.07½
.45	.45	.45	40	Toluene, 110 gal drs.....gal.	.....	.40	.40	.40
.40	.40	.45	.35	8000 gal tank cars wks....gal.	.....	.35	.35	.35
.94	.90	.94	.90	Toluidine, 350 lb bbls.....lb.	.90	.94	.94	.90
.32	.31	.32	.31	Mixed, 900 lb drs wks.....lb.	.31	.32	.32	.31
.95	.85	.90	.85	Toner Lithol, red, bbls.....lb.	.90	.95	.95	.90
.80	.70	.80	.70	Para, red, bbls.....lb.	.....	.80	.80	.80
1.55	1.50	1.80	1.70	Toluidine.....lb.	1.50	1.55	1.55	1.50
.36	.32	3.90	3.60	Triacetin, 50 gal drs wks.....lb.	.32	.36	.36	.32
.10½	.10	.....	.....	Trichlorethylene, 50 gal dr...lb.	.10	.10½	.10½	.10
.60	.55	.....	.....	Triethanolamine, 50 gal drs..lb.	.40	.42	.42	.40
.45	.33	.50	.36	Tricresyl Phosphate, drs.....lb.	.33	.45	.45	.33
.70	.58	.73	.69	Triphenyl guanidine.....lb.	.58	.60	.60	.58
.75	.60	.75	.70	Phosphate, drums.....lb.	.60	.70	.70	.60
2.00	1.75	3.00	2.50	Tripoli, 500 lb bbls.....100 lb.	1.75	2.00	2.00	1.75
.65	.51½	.66½	.50½	Turpentine Spirits, bbls.....gal.	.53	.59	.59	.53
.57	.49	.59	.46	Wood Steam dist. bbls....gal.	.....	.50	.50	.50
.30	.15	.20	.18	Urea, pure, 112 lb cases.....lb	.15	.17	.17	.15
105.00	98.00			Fert. grade, bags c.i.f.....ton	.....	108.00	108.00	108.00
106.30	99.30			c. i. f. S. points.....ton	.....	109.30	109.30	109.30
				Valonia Beard, 42%, tannin				
55.00	42.00	76.00	55.00	bags.....ton	.....	39.50	39.50	39.50
35.00	30.00	55.00	58.00	Cups, 30-31% tannin.....ton	.....	27.00	27.00	27.00
43.00	35.00	64.00	45.00	Mixture, bark, bags.....ton	.....	32.50	32.50	32.50
2.05	2.00	2.10	1.75	Vermillion, English, kegs....lb.	2.00	2.05	2.05	2.00
1.00	1.00	.....	.....	Vinyl Chloride, 16 lb cyl.....lb.	.....	1.00	1.00	1.00
49.75	43.50	76.00	49.75	Wattle Bark, bags.....ton	46.50	47.25	47.75	46.50
				Extract 55%, double bags ex-				
.06½	.06½	.06½	.05½	dock.....lb.	.....	.06½	.06½	.06½
				Whiting, 200 lb bags, c-1 wks				
1.25	1.00	1.25	1.25	.....100 lb.	.....	1.00	1.00	1.00
13.00	13.00	13.00	13.00	Alba, bags c-1 NY.....ton	.....	13.00	13.00	13.00
1.35	1.35	1.35	1.35	Gilders, bags c-1 NY...100 lb.	.....	1.35	1.35	1.35

Zinc

				Zinc Ammonium Chloride powd.,				
5.75	5.25	.05½	5.85	400 lb bbls.....100 lb.	5.25	5.75	5.75	5.25
.11	.10½	.10	.09½	Carbonate Tech, bbls NY..lb.	.10½	.11	.11	.10½
				Chloride Fused, 600 lb drs.				
.06	.05½	.06	.06	wks.....lb.	.05½	.06	.06	.05½
.06½	.06½	.06½	.06½	Gran., 500 lb bbls wks.....lb.	.06½	.06½	.06½	.06½
3.00	3.00	3.00	3.00	Soln 50%, tanks wks...100 lb.	.....	3.00	3.00	3.00
.41	.40	.41	.40	Cyanide, 100 lb drums.....lb.	.40	.41	.41	.40
1.00	1.00			Dithiofuroate, 100 lb dr....lb.	.....	1.00	1.00	1.00
.08¼	.08¼	.09	.09	Dust, 500 lb bbls c-1 wks..lb.	.09½	.11	.11	.09½
				Metal, high grade slabs c-1				
6.45	6.45½	6.40	6.07½	NY.....100 lb.	.....	6.45	6.45	6.45
.07½	.07	.07½	.07½	Oxide, American bags wks..lb.	.07½	.07½	.07½	.07½
.11½	.09½	.12½	.10½	French, 300 lb bbls wks...lb.	.09½	.11½	.11½	.09½
1.25	1.25	.....	.....	Perborate, 100 lb drs.....lb.	.....	1.25	1.25	1.25
1.25	1.25	.....	.....	Peroxide, 100 lb drs.....lb.	.....	1.25	1.25	1.25
.26	.25	.....	.....	Stearate, 50 lb bbls.....lb.	.25	.26	.26	.25
.03½	.03	.03½	.03½	Sulfate, 400 bbl wks.....lb.	.03	.03½	.03½	.03
.32	.30	.32	.30	Sulfide, 500 lb bbls.....lb.	.30	.32	.32	.30
.30	.28	.30	.29	Sulfocarbolate, 100 lb keg..lb.	.28	.30	.30	.28
.33	.33	.32	.32	Xylene, 10 deg tanks wks...gal.	.....	.31	.31	.31
.32	.30	.32	.30	Commercial, tanks wks...gal.	.28	.33	.33	.28
.38	.38	.38	.38	Xylidine, crude.....lb.	.....	.38	.38	.38
.03	.02½	.03	.02½	Zirconium Oxide, Nat. kegs...lb.	.02½	.03	.03	.02½
.50	.45	.50	.45	Pure kegs.....lb.	.45	.50	.50	.45
.10	.08	.10	.08	Semi-refined kegs.....lb.	.08	.10	.10	.08

Oils and Fats

.13½	.13	.14½	.13	Castor, No. 1, 400 lb bbls.....lb.	.13	.13½	.13½	.13
.13	.12½	.14	.12½	No. 3, 400 lb bbls.....lb.	.12½	.13	.13	.12½
.15	.14	.17	.14	Blown, 400 lb bbls.....lb.	.14	.15	.15	.14
.16	.14½	.17	.14½	China Wood, bbls spot NY...lb.	.....	.13	.13	.13
.15	.13½	.14½	.14½	Tanks, spot NY.....lb.	....	.11½	.11½	.11½
.14½	.12½	.14½	.12½	Coast, tanks, Nov.....lb.	.....	.10½	.10½	.10½
.10½	.10½	.11½	.10½	Cocoanut, edible, bbls NY....lb.	.....	.10½	.10½	.10½
.09½	.07½	.10	.09½	Ceylon, 375 lb bbls NY....lb.	.....	.08½	.08½	.08½
.08½	.06½	.09	.08½	8000 gal tanks NY.....lb.	.07	.07½	.07	.07
.10	.09½	.10½	.09½	Cochin, 375 lb bbls NY....lb.	.08½	.09½	.09½	.08½
.09½	.08½	.09½	.08½	Tanks NY.....lb.	.....	.08½	.08½	.08½
.09½	.07½	.10	.08½	Manila, bbls NY.....lb.	.....	.08½	.08½	.08½
.08½	.06½	.08½	.08	Tanks NY.....lb.	.07	.07½	.07½	.07
.08	.06½	.08½	.07½	Tanks, Pacific Coast.....lb.	.06½	.07	07	.06½

Prices Current and Comment

Purchasing Power of the Dollar: 1926 Average—$1.00 - 1929 Average $1.039 - Jan. 1929 $1.026 - Jan. 1930 $1.072

Neatsfoot Oil—Lack of buying interest has caused prices to decline considerably during the past month. Quotations are now at 17⅝c lb. on cold pressed, 11⅛c lb. on extra, and 13⅛c lb. on pure.

Oleo Oil—Prices have maintained a fairly steady level during the past month despite the rather moderate volume of business. Quotations are at 12¼c lb. for No. 1, 10⅞c lb. for No. 2, and 10½c lb for No. 3.

Olive Oil—Has shown a steady decline in price in the face of but little buying interest. Denatured is now at 95c @ $1.00 per gal. Lack of interest has also been prevalent in foots which is at 8c lb.

Palm Oil—Stocks of lagos show a tendency to become increasingly scarce and quotations are slightly higher at 7⅞c lb. Niger maintains a steady pace at 7½c lb.

Perilla Oil—New crop material comes into the market at a rather poor time since this oil is not in tremendous demand due to the low prevailing prices of its competing product.

Rapeseed Oil—Blown is off considerably being quoted at $1.00 per gal., but the other grades remain comparatively steady.

Red Oil—Lower production costs, due to lower raw material prices, combined with slackened demand, has occasioned a decline to 9¼c lb. in tanks and 10⅛c @ 10⅝c in barrels.

Soy Bean Oil—Prices have been off somewhat due in some measure to factors of Oriental exchange, but aggravated by the fact that stocks are at present very heavy. There are large supplies of domestic oil also available but with little movement being reported. Tanks at the Coast are at 9¼c lb., tanks at New York are at 9¾c lb., while tanks of domestic at the mills are at 8c lb.

Stearic Acid—The combination of lower production costs combined with slackened demand has lead to sharp price reductions in this material during the past month. Quotations are now at 14½c @ 15c lb. on double pressed distilled, 15c @ 15½c lb. on double pressed saponified and 16½c @ 17c lb. on triple pressed distilled.

Stearine Oleo—Has declined very sharply to 9¼c @ 9½c lb., the lowest point at which this material has been since 1927.

Whale Oil—Early reports of the catch indicate that it will be larger than last year's. One company reports 122,925 barrels of oil as against 91,080 for the same period of last year. Another reports production of 41,500 barrels to December 31, 1929.

1929 High	1929 Low	1928 High	1928 Low		Current Market	1930 High	1930 Low
				Cod, Newfoundland, 50 gal bbls			
.64	.57½	.69	.63	.....gal.	.....	.56	.56	.56
.60	.60	.63	.60	Tanks NY.....gal.	.....	.62	.62	.62
				Cod Liver see Chemicals.....			
.05½	.042	.06½	.05½	Copra, bags.....lb.	.....	.046	.046	.046
.10½	.09½	.11	.10	Corn, crude, bbls NY.....lb.	.....	.10	.10	.10
.09½	.07½	.10	.08½	Tanks, mills.....lb.	.....	.08	.08	.08
.11½	.10½	.12½	.11½	Refined, 375 lb bbls NY....lb.	.....	.10½	.10½	.10½
.11	.09	.11½	.10½	Tanks.....lb.	.....	.09½	.09½	.09½
.09	.08½	.09½	.07½	Cottonseed, crude, mill.....lb.	.....	.07½	.07½	.07½
.1075	.085	10.65	.09½	PSY 100 lb bbls spot.....lb.	.....	.085	.085	.085
.1080	.088	10.75	.09½	Nov.—Jan.....lb.	.....	.09	.09	.09
				Degras, American, 50 gal bbls			
.05	.03½	.05	.04½	NY.....lb.	.03½	.04½	.04½	.03½
.05½	.04½	.05½	.04½	English, brown, bbls NY....lb.	.04½	.05	.05	.04½
.05½	.05	.05½	.05½	Light, bbls NY.....lb.	.05	.05½	.05½	.05
				Greases			
.08½	.06	.08½	.07	Greases, Brown.....lb.	.....	.06½	.06½	.06½
.08½	.06½	.08½	.07	Yellow.....lb.	.....	.07½	.07½	.07½
.11½	.07½	.11	.09½	White, choice bbls NY.....lb.	.....	.08½	.08½	.08½
		.42½	.40	Herring, Coast, Tanks.....gal.	.....	Nom.	.....	.....
Nom.	.....	Nom.	.09½	Horse, bbls.....lb.	.09½	Nom.	Nom.	.09½
.15½	.14½	.16½	.15½	Lard Oil, edible, prime.....lb.	.....	.13½	.13½	.13½
.13½	.12	.13½	.12	Extra, bbls.....lb.	.....	.12	.12	.12
.13½	.11½	.13	.11	Extra No. 1, bbls.....lb.	.....	.11	.11	.11
.162	.105	10.8	10.0	Linseed, Raw, five bbl lots...lb.	.....	.144	.144	.144
.158	.101	10.4	9.6	Bbls c-l spot.....lb.	.....	.14	.14	.14
.15	.093	9.6	8.8	Tanks.....lb.	.....	.132	.132	.132
.09½	.09½	.09½	.09½	Lumbang, Coast.....lb.	.....	.09½	.09½	.09½
.52	.45	.48	.40	Menhaden Tanks, Baltimore.gal.	.....	.50	.50	.50
.09	.09	.09	.09	Blown, bbls NY.....lb.	.....	.09	.09	.09
.70	.70	.70	.67	Extra, bleached, bbls NY..gal.	.....	.70	.70	.70
.64	.63	.64	.63	Ligh, pressed, bbls NY....gal.	.63	.64	.64	.63
.67	.66	.67	.66	Yellow, pressed, bbls NY..gal.	.66	67	.67	.66
				Mineral Oil, white, 50 gal bbls				
.60	.40	.60	.40	.....gal.	.40	.60	.60	.40
1.00	.95	1.00	.95	Russian, gal.....gal.	.95	1.00	1.00	.95
.19	.18½	.19	.18½	Neatsfoot, CT, 20° bbls NY lb.	.....	.17½	.17½	.17½
.13½	.12	.13½	.12	Extra, bbls NY.....lb	.. ..	.11½	.11½	.11½
.15½	.13½	.16½	.15½	Pure, bbls NY.....lb.	.....	.13½	.13½	.13½
.11½	.10½	.17½	.11½	Oleo, No. 1, bbls NY.....lb.	.....	.12½	.12½	.12½
.11½	.10	.15½	.11	No. 2, bbls NY.....lb.	.....	.10½	.10½	.10½
.10½	.09½	.14	.10	No. 3, bbls NY.....lb.	.....	.10½	.10½	.10½
1.40	1.05	1.40	1.18	Olive, denatured, bbls NY...gal.	.95	1.00	1.00	.95
2.00	1.95	2.00	1.75	Edible, bbls NY.....gal.	1.95	2.00	2.00	1.95
.11½	.08½	.11	.09½	Foots, bbls NY.....lb.	.....	.08	.08	.08
.09	.08	.09½	.08½	Palm, Kernel, Casks.....lb.	.....	.08½	.08½	.08½
.09	.07½	.09½	.07½	Lagos, 1500 lb casks.....lb.	.....	.07½	.07½	.07½
.08½	.07	.08½	.07	Niger, Casks.....lb.	.....	.07½	.07½	.07½
Nom.	.....	.12½	.12	Peanut, crude, bbls NY.....lb.	.....	Nom.	Nom.	.....
.15	.14½	.17	.14½	Refined, bbls NY.....lb.	.14½	15	.15	.14½
.20	.15	.21	.13	Perilla, bbls NY.....lb.	.....	.14½	.14½	.14½
.15½	.13	.15½	.10½	Tanks, Coast.....lb.	.....	.10½	.10½	.10½
1.75	1.70	1.75	1.70	Poppyseed, bbls NY.....gal.	1.70	1.75	1.75	1.70
1.04	1.04	1.06	1.01	Rapeseed, blown, bbls NY...gal.	1.00	1.00	1.00	1.00
.90	.82	.92	.83	English, drms. NY.....gal.	.....	.82	.82	.82
.88	.72	.90	.81	Japanese, drms. NY.....gal.	.....	.70	.70	.70
.11½	.10½	.10½	.09½	Red, Distilled, bbls.....lb.	.10½	.10½	.10½	.10½
.10½	.09½	.09½	.08	Tanks.....lb.	.....	.09½	.09½	.09½
.44	.42	.50	.42	Salmon, Coast, 8000 gal tks..gal.	.42	.44	.44	.42
.51	.45	.50	.41	Sardine, Pacific Coast tks...gal.	.....	.42	.42	.42
.12	.11½	.13½	.12	Sesame, edible, yellow, dos...lb.	.11½	.12	.12	.11½
.12½	.12½	.15	.12½	White, dos.....lb.	.12½	.12½	.12½	.12½
.40	.40	.40	.40½	Sod, bbls NY.....gal..	.....	.40	.40	.40
		.....	.....	Soy Bean, crude.....				
.10½	.09	.09½	.09	Pacific Coast, tanks.....lb.	.....	.09½	.09½	.09½
				Domestic tanks, f.o.b. mills,				
.10½	.08½			.....lb.	.....	.08	.08	.08
.12½	.11¼	.12½	.12	Crude, bbls NY.....lb.	.....	.10½	.10½	.10½
.11½	.10½	.10½	.10½	Tanks NY.....lb.	.....	.09½	.09½	.09½
.13½	.13½	.13½	.13½	Refined, bbls NY.....lb.	.13½	.13½	.13½	.13½
				Sperm, 38° CT, bleached, bbls				
.85	.84	.85	.84	NY.....gal.	.84	.85	.85	.84
.80	.79	.80	.79	45° CT, bleached, bbls NY gal.	.79	.80	.80	.79
				Stearic Acid, double pressed dist				
.18½	.15½	.18½	.11	bags.....lb.	.14½	.15	.15	.14½
				Double pressed saponified bags				
.19	.15½	.19	.11½	.....lb.	.15	.15½	.15½	.15
20½	.17½	.20½	.13½	Triple, pressed dist bags..lb	.16½	.17	.17	.16½
.12	.09½	.12½	.09½	Stearine, Oleo. bbls.....lb.	.09½	.09½	.09½	.09½
.08½	.07	.09½	.08½	Tallow City, extra loose.....lb.	.....	.07½	.07½	.07½
.10½	.08	.10½	.09½	Edible, tierces.....lb.	.09	.09½	.09½	.09
.12	.10½	.12½	.11½	Tallow Oil, Bbls, c-1 NY...lb.	.....	.11	.11	.11
.11	.09½	.11½	.10½	Acidless, tanks NY.....lb.	.....	.10	.10	.10
Nom.	.08	Nom.	.08	Vegetable, Coast mats.....lb.	.08	Nom.	Nom.	.08
.12	.11	.'1	.....	Turkey Red, single bbls.....lb.	.11	.12	.12	.11
.16	.14	.16	.14	Double, bbls.....lb.	.14	.16	.16	.14
				Whale, bleached winter, bbls				
.80	.74	.80	.78	NY.....gal.	.....	.74	.74	.74
.82	.76	.82	.80	Extra, bleached, bbls NY..gal.	.....	.76	.76	.76
.78	.73	.78	.76	Nat. winter, bbls NY.....gal.	.....	.73	.73	.73

Index To Advertisers

"WE"—Editorially Speaking

We present "By Order of the Board of Directors" in our pages this month with considerable regret. This regret is due to the fact that time did not permit us to submit the proofs to Senator La Follette, to whom we award the palm of the month for reading between the lines. The gentleman from Wisconsin caused these words to be written into the pages of the long-suffering *"Congressional Record."* "From the financial statements of the du Pont company and the Allied Chemical and Dye Corporation, it is evident that the sale of coal tar dyes are cheaper for export than for home consumption, has not materially diminished the profit of these concerns. In other words, notwithstanding the fact that in many instances these concerns are selling colors for one-half the price for export than for home consumption, they are still making money on the coal tar dyes they are selling for export."

We submit that this smacks of wizardry. Anybody who can get that much information out of an Allied Chemical or du Pont financial statement would appear at first glance to be burying his talents in the Senate. Hence our regret. If we had only had time to submit our proofs to Mr. La Follette we might have been able to present many more startling revelations than now appear in "By Order of the Board of Directors."

William L. Holter, who discusses the problems confronting the lacquer industry, is eastern manager, Van Schaack Brothers Chemical Works, and president, Chemical Products Corp. He was born in Stillwater, Oklahoma, and educated at Penn State and the University of California, receiving the degree of B. S. from the former, and an A. B. from the latter. Upon his graduation in 1916, he became associated with the Hercules Powder Company, with which organization he remained until 1920, when he assumed his present position. He is a member of Phi Kappa Sigma, American Society of Testing Materials, University Club of Boston, Chemists' Club (N. Y.), and the Boston City Club.

William B. Campbell, whose contribution on "Liquefied Petroleum Gas" appears in our pages this month, is manager of the Wholesale and Special Products' Divisions of the Philfuels Company, and has been in the liquefied petroleum gas business since the advent of Phillips Petroleum into this field. He was born in Indiana and is a graduate of Purdue University, where he studied engineering and received an M. E. degree. Upon leaving school, he became associated with the Marmon Motor Company, serving in both engineering and sales capacities. After three years, he resigned and with a partner secured the Marmon agency for Florida. After a year he joined the York Ice Machinery Corporation, refrigerating engineers, with whom he was connected prior to his association with the Philfuels Company in 1927.

COMING FEATURES

DOES THE CHEMICAL JOBBER LOWER DISTRIBUTION COSTS

H. G. MacKelcan, sales manager, Innis, Speiden & Co., advocates the cause of the chemical dealer in terms of lower costs.

NITROLLOY AND THE NITRIDING PROCESS

Dr. J. T. Norton, Jr., Ludlum Steel Co., outlines the recent progress in this field and the possibilities for wider applications.

ACETONE

A comprehensive survey of the history and present market position of this chemical which was born and nurtured during the hectic days of the war.

We can only explain it all on the grounds of the well-known holiday spirit, which apparently remained with some of our readers until after they had perused our January issue. Of course we are accustomed to receiving both bouquets and brickbats, but, human nature being what it is, we have stoically resigned ourselves in typical editorial fashion, to receiving many more of the latter than of the former. But our January issue received only compliments, some of which follow.

From John H. Barker, Brooklyn, N. Y.; "Your recent articles on conditions in foreign countries were very interesting and informative; but principally I read CHEMICAL MARKETS for information as to new construction, changes in personnel, etc., which help me in my selling."

From A. F. Detweiler, manager, Maine division, Armour Fertilizer Works: "We were greatly interested in the articles concerning the chemical industry in Europe. Your magazine contains a lot of valuable and interesting information."

From Anne MacKay, librarian, Lloyd Library, Cincinnati: "We are going to call our readers' attention especially to the foreign articles in your January issue."

From David Wesson, technical counsellor, Southern Cotton Oil Co.: "Your January issue was a corker: the stuff it contained was real news."

Holiday spirit or no, we thank you.

Another subscriber comes to us with the following problem. He writes as follows: "I wish to start the manufacture of some commercial chemical for which there is a ready market. Will you kindly give me your advice as to some line which could be started in a small way in a small plant and gradually built up and extended. I have some capital available for this venture."

Of course, we know the answer, but maybe some of our other readers would like to offer suggestions as to what he should do with his money.